

***United States Court of Appeals
for the
District of Columbia Circuit***



**TRANSCRIPT OF
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248
BRIEF FOR APPELLANTS AND JOINT APPENDIX

United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA CIRCUIT

No. 18,014

**ROBERT A. HARRIS
and
RIGGS INVESTMENT CORP.,**

Appellants,

v.

**WALTER N. TOBRINER,
President,**

**JOHN B. DUNCAN
and**

**CHARLES M. DUKE,
Board of Commissioners, District of Columbia,**

Appellees.

APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

United States Court of Appeals
for the District of Columbia Circuit

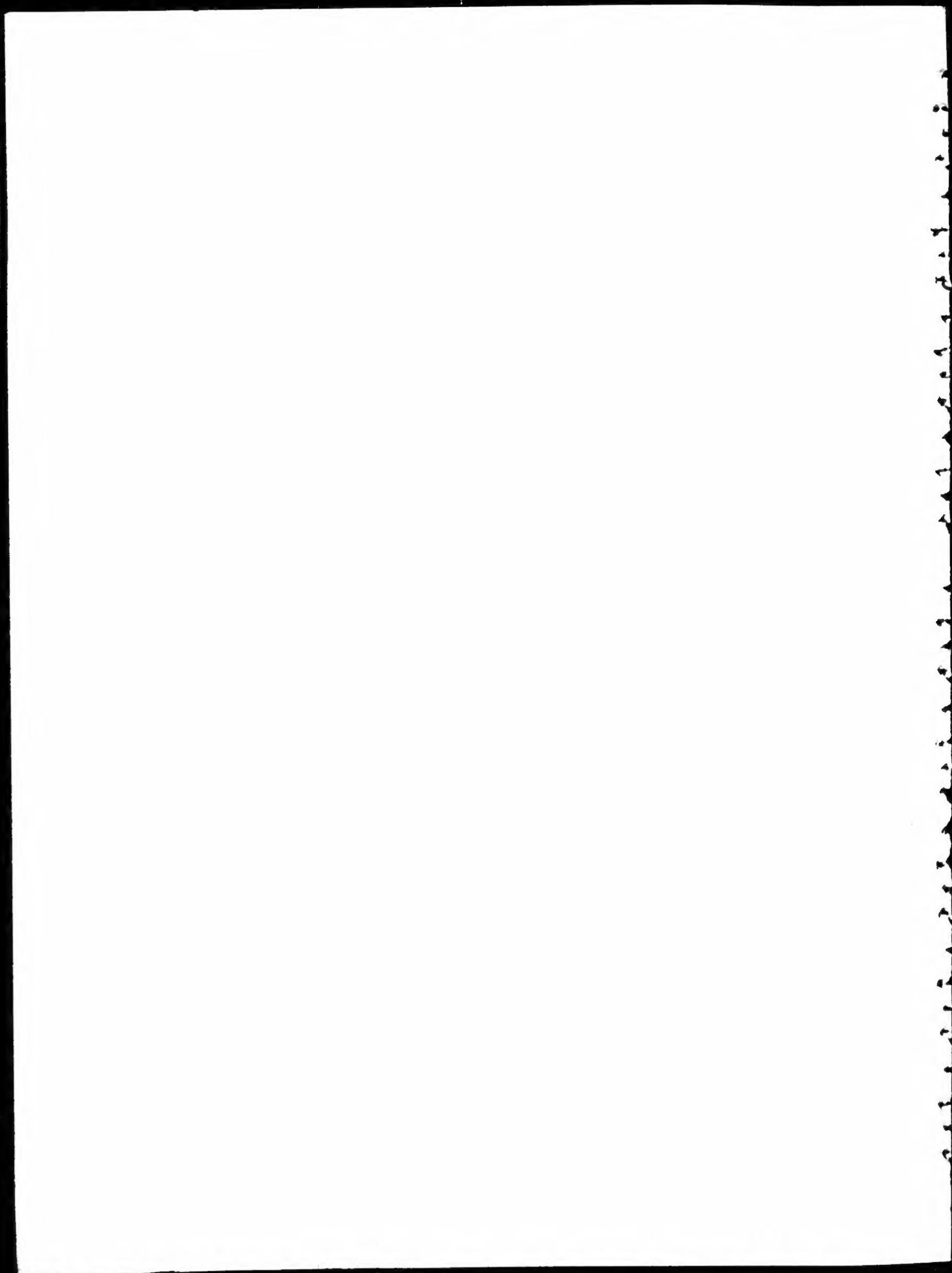
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STATEMENT OF QUESTIONS PRESENTED

Appellant Harris installed a master TV antenna system in a building owned by appellant Riggs. The "lead-in" line from the antenna mast on the roof to an amplifier in the basement was enclosed in a metal conduit containing only this line. After leaving the amplifier in the basement, the antenna line then was split off and distributed throughout the building in metal conduits, which also contained telephone lines, to each apartment in the project for the convenience of the tenants and the owner. The entire system was properly grounded throughout. The D. C. Electrical Code regulations do not require a permit for or inspection of such installations; and said regulations do not require telephone or TV lines to be enclosed in metal conduits. The system involved is similar to systems installed and in use by the telephone company. The Board of Appeals and Review concluded that "the system in use in the instant case is a good system and is in keeping with present-day knowledge in the field of this science". Section 8123.2 of the D. C. Electrical Code provides: "Indoor antennas and indoor lead-ins shall not be run nearer than two inches to conductors or other wiring systems in the premises" This regulation was copied from the National Electrical Code, but had never previously been construed to prohibit such an installation, and the Commissioners offered no testimony as to its purpose. While several expert witnesses testified on behalf of appellants that the installation is safe and the best known to the science at this time, and that either Section 8123.2 does not apply, or if applicable, it bears no reasonable connection between the prohibited installation and the health, safety and welfare of the public, the Commissioners, on the other hand, offered no testimony disputing or contradicting this testimony.

In this context, the first question presented is whether the Department of Licenses properly construed that section of the Electric Code to prohibit this installation, and whether there is a reasonable connection

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between the installation and the health, safety and welfare of the public.

As a corollary, another question presented is whether, in view of the failure of appellees to comply with the caveat of this Court that "the hazard appellees fear must be established by competent evidence", the lower court was correct in granting summary judgment for appellees and in denying summary judgment to appellants.

A subsidiary question is involved as to whether there was any evidence to support the decision of the Board and the judgment of the lower court, based as they were, in part at least, upon two certain letters received in evidence over appellants' objections; as to the first letter, because it was written by a District official who had no personal knowledge of the facts, seeking to elicit an opinion as to whether there was a violation of Section 8123.2 under hypothetical circumstances which were inaccurate and which did not convey all of the essential facts involved; and as to the second letter written in response to the first, because the author, whose testimony appellees had ample opportunity to obtain by legitimate means, was not available in this jurisdiction and not subject to cross-examination, thus violating the hearsay rule.

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APPEAL FROM THE UNITED STATES DISTRICT COURT
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BRIEF FOR APPELLANTS

JURISDICTIONAL STATEMENT

This is an appeal from a summary judgment in favor of appellees and the denial of a summary judgment in favor of the appellants by the United States District Court for the District of Columbia. The jurisdiction of this Court is based upon 28 U.S.C. Section 1291. The jurisdiction of the lower court is based upon Title 11, Section 301 et seq. of the D.C. Code (1961 Ed.), and 28 U.S.C. Section 2201.

PRELIMINARY STATEMENT

This is the second time appellants have taken an appeal from the judgment of the lower court in this case. On May 3, 1962, this Court reversed the first summary judgment granted to the appellees and remanded the case for further proceedings (113 U.S. App. D.C. 10, 304 F 2d 377). Over appellants' objections, the lower court ordered a de novo hearing before the D. C. Board of Appeals and Review. After that hearing the transcript, exhibits and another decision of the Board was certified to the lower court. Appellants filed a motion for judgment or for a summary judgment, and appellees filed a cross-motion for summary judgment. Judge Matthews denied appellants' motion and granted the motion of appellees. The present appeal is from that judgment.

STATEMENT OF CASE

(a) Proceedings Below

The verified complaint of appellants filed on May 17, 1961, sought to review and set aside a decision of the D. C. Board of Appeals and Review rendered in March, 1961, a declaratory judgment, an injunction and other relief (JA 4-10). Appellees have never filed any formal answer to the complaint, although as will be seen from an examination of the complaint, the stipulations, the transcript of testimony, and the exhibits, the essential facts are not in dispute or controverted.

Appellant Harris, a licensed and bonded electrical contractor with many years of experience, entered into a contract in 1959 with the appellant, Riggs Investment Corporation, for the electrical work in the construction of an apartment project on property located on 2nd Street, N.E., including the installation of metal conduits or raceways. The owner Riggs permitted the telephone company to utilize these metal conduits to run telephone lines throughout the project for the convenience of the prospective tenants, as well as the telephone company. After the buildings were completed and occupied, Riggs employed Harris to install

a master television antenna system utilizing the existing metal conduits to run the lines to the various apartments in the project for the benefit of the tenants. Prior to that time, no permits had been required or issued for such work by the District; no inspection was ever made of or required for such installations; and under the D. C. Electrical Code neither television antenna lines nor telephone lines were required to be enclosed in metal conduits (Stipulation, Ex. A-5, JA 122-124).

Some time after the antenna installation, the District advised Harris that an inspection disclosed a violation of the Electrical Code and ordered a correction. His request for a conference was not granted, so he filed a timely appeal with the Board of Appeals and Review, established in Part VIII of Reorganization Order No. 112. After hearings before that Board, the action of the Department of Licenses and Inspections was sustained. Having exhausted all administrative remedies, appellants filed their complaint in the lower court, which granted summary judgment to these appellees. Appellants filed a motion for reconsideration, which was denied and, as has been stated above, this Court reversed that judgment on May 3, 1962. (JA 2).

On May 21, 1962, the day before the mandate of this Court was filed below, appellees filed a motion to remand the case to the Board of Appeals and Review for a hearing de novo (JA 11). Appellants objected to this motion among other reasons because appellees had not filed an answer to the complaint, and the issues were therefore undefined (JA 2). Nevertheless, the lower court ordered a remand to the Board for a de novo hearing with directions that the record be filed with the court within thirty days thereafter (JA 2). Consequently, another hearing took place before that Board on June 25 and 26, 1962. The members consisted of the late Kenneth N. Parkinson, Esquire, as Chairman (the only member who served on both panels in this case), W. Herbert Gill, as the public member, and Guy W. Puntch, a District employee, together with the permanent member, Frederick L. Haller.

The hearing before that Board will be discussed infra. The Board entered another decision against the appellants and certified the proceedings back to the lower court (JA 128).

Appellants then filed their motion for a judgment, or for summary judgment, on the grounds that there was no genuine issue as to any material fact, that the record clearly demonstrates appellants were entitled to the relief sought, and that Section 8123.2 of the D. C. Electrical Code is not applicable or, if applicable, that section should be held invalid as applied to this case. Pursuant to Rule 9(h) of the lower court, appellants filed their statement of material facts as to which they contended there is no genuine issue: (1) No permits or inspections were required either for TV antenna systems or telephone lines; (2) The Electrical Code does not require either TV or telephone lines to be enclosed, and that either or both lines may be run in any manner desired without being enclosed and within less than two inches of each other; (3) Enclosing the antenna and telephone systems in a metal conduit, if anything, adds to the safety of the systems; (4) The TV antenna system was installed in a safe, expert, workmanlike manner, using quality materials; (5) The TV system is the best known to present-day science; (6) There is no danger or hazard involved; (7) There is no reasonable connection between the prohibited installation and the health, safety and welfare of the public; and (8) The "lead-in line" referred to in Section 8123.2 is the line leading from the roof antenna to the amplifier in the basement, which line is contained in its own metal conduit, and therefore Section 8123.2 does not apply. (JA 131-133). Appellees filed a cross-motion for summary judgment (JA 133). On June 6, 1963, Judge Matthews entered a summary judgment in favor of appellees and denied appellants' motion for judgment. (JA 134).

(b) The De Novo Hearing Before the Board of Appeals and Review.

The appellees assumed the burden of proof before the Board of Appeals and Review and offered testimony on their case in chief and in rebuttal to the testimony offered by appellants. Although the transcript of the hearing before the Board consists of some 280 pages, portions of which are included in the joint appendix, an attempt will be made to discuss only the essential parts of the testimony which bear directly on the positions of the respective parties. Other pertinent parts of the record will be discussed in the argument.

The only witness called by appellees who inspected the premises and the installation involved, JOHN W. LEWIS, Chief of the Electrical Inspection of the D. C. Department of Licenses and Inspections, testified that on his inspection he found no exposed lines in the conduits (JA 19); while a hazard may be created under certain conditions, he found no hazardous conditions existing in this case (JA 20); he disclaimed any real knowledge in this field (JA 116); he had nothing to do with the drafting or incorporating of Section 8123.2 into the Electrical Code; he did not know what this section was designed to include; and he stated several times that he was not an expert in this field. (JA 116, 117, 118).

An engineer employed by the District, BERTRAM VOGEL, testified that he wrote a letter to one GEIGES, living in California, who was said to be chairman of a panel of the National Electrical Code (JA 25-26). Apparently this letter was written in an attempt to elicit an opinion from Geiges based upon a hypothetical situation which was far from factual, or had no relationship to the instant case, as to whether there was a literal compliance with Section 810-18 (b) of the National Electrical Code. The letter from Vogel and the response from Geiges (JA 126-127) were admitted into evidence, over strenuous objections of appellants' counsel, in an effort to show an alleged hazard (JA 26-33). In this

connection, counsel for appellees candidly admitted that the District had not conducted any independent research on the Electrical Code section involved, but relied entirely upon the National Code Committee regulations (JA 27). Appellees' counsel stated ". . . . in best trying to prepare for this case. . . ." he ". . . . sought out expert advice as to the hazard involved in this" (JA 27), and submitted that this correspondence was "the best evidence possible" (JA 29). While the Board originally excluded this evidence (JA 29-30), the correspondence was later received (JA 48-50, Government Exs. No. 2 and 3), after appellees' witness, FRANK STETKA, identified the correspondence and stated that he agreed with the Geiges letter (JA 47-49), even though he, Stetka, had no training or experience with the systems and equipment under discussion, and he had never seen or inspected this installation (JA 51-53).

Appellees also called as their witness LEON B. DAVIS, a staff engineer employed by the telephone company. While at first he testified over objection that there may be a mechanical and electrical hazard involved in putting a telephone line in a conduit with another system, and if improperly installed there was a possibility of a harmonic or sound interference, he also stated there would be little likelihood of any dangerous condition from induction; and that when the TV system is functioning normally, there is no danger to life, limb, person or property (JA 34-39). He did not inspect the system under discussion, nor did he know how it was installed (JA 39); the telephone company itself installs telephone lines and coaxial cables in the same enclosures (JA 41), as well as telephone lines with inter-communicating systems in the same metal enclosures, even though the inter-communicating system is connected to an electrical current; he could not testify as to what might happen if lightning struck the roof antenna (JA 42-43); that telephone lines could be run in any manner desired without being enclosed (JA 44); that the telephone company tries to protect its installations from the hazards of lightning to the best of its ability, that if lightning struck a properly

grounded TV antenna system, there would be no danger (JA 45-46); he was reluctant to say there would be absolutely no danger because neither the telephone company nor anyone else could offer absolute protection against all contingencies, but insofar as engineers can devise a perfect system, they have done so with regard to the danger from lightning to telephone lines (JA 46-47).

The final witness for appellees was RICHARD L. LLOYD, acting chief of the Codes and Safety Standards Section in the Building Research Division of the Bureau of Standards, who serves on a number of committees, including one which has to do with lightning. Over objection, he stated that he agreed with the Geiges letter. His direct testimony was entirely academic and theoretical, having nothing to do with the installation here involved (JA 53-55). On cross-examination, he disclaimed any intention to convey the idea that, because lightning might strike an antenna, all roof antennas should be eliminated (JA 61-71). When asked what would happen if lightning struck the ordinary garden variety type of antenna on a house roof, he stated that if the aerial was grounded lightning would probably travel over any suitable conductors to ground; that while one should not touch a television set during a thunderstorm, there was no harm in watching a TV set at such times, although he would not advocate contact with the appliance under such conditions; that while a separation of six feet between systems is recommended, this is sometimes impractical, although desirable (JA 60-62). The witness seemed to agree that each step of the installation described in the instant case was good practice and properly done. He did not know what would happen if an exposed TV antenna line came into contact with an exposed telephone wire (JA 63-64). The witness discussed the Empire State Building in New York, which has a TV antenna mast extending above the height of that building which has been struck by lightning many times. He stated that there was no danger to people in the buildings that are not exposed to other hazards, but when asked who would be exposed to any danger if lightning struck the TV antenna

aerial on the roof, he stated he was not qualified to answer (JA 64-65). The extent of his experience with respect to TV systems has been limited to his work with the Code Department (JA 67); he does not know of any other system of this type, whether there are few or many, nor what the safety experience has been in such installations (JA 67-68). He agreed that there is no such thing as absolute fireproof or absolute lightning-proof; he did not know that the telephone company encloses coaxial cables with telephone lines, or telephone lines with inter-communicating systems in the same metal conduits, although he stated that such systems do not offer a hazard if they are insulated in suitable protectors for the voltages involved (JA 68). He also stated he was not familiar with the type of system here involved, nor with any system of this type having a TV antenna line passing through the same conduit as telephone lines (JA 70-71), and that he did not know what specific equipment was employed in the system under discussion (JA 73).

Appellants offered the testimony of three scientists, all of whom had inspected the installation involved. One was ISADORE LIEBERMAN, a graduate of Brooklyn Polytechnic Institute, with a background of employment by the Commercial Radio Sound Corporation when he participated in the first master antenna installation ever made with hand-made equipment in the Park Lane Hotel in New York, having designed hundreds of systems for that company; formerly employed by Bell Television, Inc., and presently employed by the Entron Company, as manager of their Systems Construction Division. His firm manufactures and installs TV antenna equipment similar to that used here, and designs and installs TV antenna systems for entire communities throughout the country. The second expert was ROBERT E. FISCHER, a Duke University graduate engineer holding a Master of Science degree from Maryland University, and employed as a physicist on the staff of the Johns Hopkins University Applied Physics Laboratory, dealing in electronics and electrical instrumentations of all kinds. The third scientist was ROMULUS FRATILA, a B.S. in physics from Bucknell University, engaged in

graduate work for a doctorate in physics at both Maryland and Catholic Universities, with a history of antenna design development experience with Melpar, Inc., as a microwave physicist with the American Machine Foundry Company, and presently a staff member of Radiation Systems, Inc., dealing with microwave design and development of antennas, antenna systems, radar antenna systems, ground base and airborne radar systems.

Each of these experts, as stated, examined the installation and testified with respect thereto. All agree that the "lead-in" line is that line which runs from the antenna mast on the roof, in its own metal conduit, to the amplifier in the basement; that the antenna mast and the conduit containing the "lead-in" wire are each separately grounded; the amplifier which receives the "lead-in" wire in the basement is also grounded; that the amplifier is then connected to a transformer or splitter, which device is grounded; the signal is then carried over a coaxial cable through conduits containing the telephone lines, to a number of outlets in the various apartments in the buildings; the metal conduits are grounded; the TV coaxial cable has an outlet box and a grounded isolating device in each of the apartments which then runs to the respective television receivers. The purpose of grounding all this equipment is to provide maximum safety, even though the energy output of these antenna lines is measured in terms of microvolts, or about a tenth of a volt, which is hardly sufficient to light a bulb, and there is no contact between the telephone line and the TV antenna line. The system here involved was installed in accordance with all applicable codes; that there is no danger or hazard in this system; that it meets the highest standards of safety and quality; and enclosing the antenna system in metal conduits as was done in this case, if anything, adds to the safety of the installation, which is the best system the present state of the art can offer. The telephone company does the identical thing when it runs coaxial cables and telephone lines in the same enclosure, as well as telephone lines and inter-communicating systems in the same enclosure.

Similar installations have been made in other jurisdictions. Accidents in connection with television sets in all cases have been the result of faulty manufacture of the receiving sets, and not from antenna systems (JA 74-99, 102-115).

A stipulation was filed with the Board of Appeals and Review containing the testimony of ALVIN E. CUSHNER, who had testified on behalf of appellants in the first hearing. He is an official of the Jerrold Electronics Corporation of Philadelphia, having an engineering background. His firm is a leader in the manufacture of television equipment, installing television antenna systems which service entire towns, cities and communities which do not have their own broadcasting stations but must rely on poor reception from neighboring broadcasting areas. He also inspected the premises involved, and stated that the installation was made in a first-class, competent, workmanlike fashion, and that there was absolutely no danger or hazard involved in this system; that there would be no difference in the performance or functions of the two lines whether or not they were both enclosed in the same metal conduit, and that if lightning struck the roof antenna, there would be no danger either to the television sets or anyone coming in contact with the television set or the telephone (JA 120, 121).

**(c) The Decisions of the Board of Appeals
and Review.**

On March 16, 1961, the original Board of Appeals and Review rendered its "findings of fact and conclusions of law" by simply stating that there was a clear violation of Section 8123.2 of the Electrical Code, and that the action of the Department of Licenses and Inspections was sustained (JA 6, Complaint Para. 11). After the de novo hearing before the second Board of Appeals and Review, another decision dated July 3, 1962, was rendered (JA 128-130). After briefly reviewing the history of the case, although uncertain as to whether the lower court intended that it should render a decision, nevertheless this Board concluded that

it should do so. First, the Board concluded that it does not have the power to declare Section 8123.2 of the Electrical Code invalid. It next considered whether or not the installation involved constituted a hazard or danger "as contended by the District of Columbia." Here the Board concluded:

"From the testimony it would appear, to our satisfaction at least, that the danger is so remote as to be almost infinitesimal and that the system in use in the instant case is a good system and is in keeping with present day knowledge in the field of this science. Even though remote and infinitesimal, nevertheless a potential danger is not ruled out, and the purpose of this regulation was, insofar as possible, to rule out even a potential. For that reason, if for none other, we unanimously sustain the action of the Department of Licenses and Inspections, and deny the appeal." (Underscoring supplied)

Being uncertain as to what is meant by the term "lead-in wires" and feeling that it was unnecessary to reach a decision on this point, the Board did not do so.

STATUTES, REGULATIONS OR RULES INVOLVED

The 1957 Electrical Code, Rules and Regulations.

Article 810, Section 8123.2:

"8123.2 Antennas and Lead-Ins - Indoors. Indoor antennas and indoor lead-ins shall not be run nearer than two inches to conductors of other wiring systems in the premises unless (1) such other conductors are in metal raceways or cable armor, or (2) unless permanently separated from such other conductors by a continuous and firmly fixed non-conductor such as porcelain tubes or flexible tubing."

D. C. Code Provisions Involved.

D. C. Code (1961 Ed.) Title 1 - Administration
Appendix.

Organization Order No. 112 - Part 1, Board of
Appeals and Review; Section B-1:

"1. The Board of Appeals and Review is an administrative agency in the Government of the District of Columbia providing a final administrative remedy in those cases assigned to it."

Section D. Organization. Paragraph 2 (d).

"Subject to the provisions of the second paragraph of Part 11 A (a) of the Reorganization Order No. 50, as amended, each Hearing Committee shall exercise the following functions:

(i) Conduct all hearings in cases assigned to it.

* * * * *

(iii) In each case make findings of fact, conclusions of law and a decision.

(iv) File its findings of fact, conclusions of law and decision in each case with the Chairman, who shall transmit a copy thereof to each of the parties."

STATEMENT OF POINTS

The lower court erred in granting summary judgment to appellees and in refusing to grant summary judgment to appellants.

SUMMARY OF ARGUMENT

D. C. Electrical Code Section 8123.2 is not applicable to this installation. If it is applicable, it is ambiguous, in conflict with other provisions of the Electrical Code, it has no relationship to and does not promote health, safety or general welfare, and it results in no corresponding benefit to the public, the tenants, or the owner.

Contrary to the caveat of this Court, appellees have failed to establish by competent evidence any hazard or danger involved in this installation, and failed to produce any witnesses to prove the existence of any hazard. Consequently, such failure eliminates any presumption as to the validity of the Electrical Code section involved, and gives rise to the presumption that had appellees produced such a witness his testimony would be adverse. By contrast, appellants established by competent testimony of several experts that the installation is safe and the best system known to science at the present time. This evidence was not disputed or contradicted.

Appellees' action and the rulings below are contrary to past interpretation and administrative practice. Neither the industry nor the public have ever previously been advised of appellees' present construction of this Electrical Code section. Permits and inspections are not required for the installation of TV antenna systems and therefore, no hazard is involved and none is contemplated by the Electrical Code. Likewise, there is no requirement that either telephone or TV antenna lines be enclosed in a metal conduit; and enclosing them in the same conduit promotes safety and creates no hazard or danger. The system involved is similar to systems installed and in use by the telephone company. The "lead-in line" described in Section 8123.2 is enclosed by itself in a metal conduit between the antenna mast on the roof and the amplifier in the basement; thus the system is in literal compliance with the Code provision if the same is applicable. On the other hand, if the installation is contrary to the literal provisions of that section, then said provision is arbitrary and therefore invalid.

The Board committed error by admitting certain letters in evidence in violation of the hearsay rule, and which were offered by appellees in an avowed attempt to show a literal violation of Section 8123.2. Presumably this testimony was relied upon by the lower court, and if so, it constituted prejudicial error since there was no other competent evidence to support the lower court's judgment.

ARGUMENT

The test to determine the validity of building regulations has been clearly stated by this Court in Dunigan v. District of Columbia (59 App. D. C. 384, 44 F 2d 892):

"It is settled law that, in order to be valid, building regulations must be reasonable and not arbitrary, and must have a tendency to promote the health, safety, or general welfare; and, although a regulation may be lawful on its face and apparently fair in its terms, yet if it is enforced in such a manner as to work a discrimination against a part of the community for no lawful reason, such exercise of power will be invalidated by the Courts. Yick Wo v. Hopkins, 118 U.S. 356, 6 S. Ct. 1064, 30 L. Ed. 220; Dobbins v. Los Angeles, 195 U.S. 223, 25 S. Ct. 18, 49 L. Ed. 169."

From the outset appellants have challenged appellees to demonstrate the applicability of Electrical Code Section 8123.2 to these circumstances, to establish by competent evidence how and in what manner this installation is dangerous or hazardous, and how "the public health, safety or welfare" is affected. Appellees have failed to meet this challenge.

In the first appeal of this case (113 U.S. App. D.C. 10, 304 F 2d 377), since there was no record of the proceedings before the Board, this Court reversed a summary judgment because "appellants are entitled to a review of the record made before the Board of Appeals and Review." At the first hearing before the Board, and on the appeal to this Court, appellees relied upon an alleged complaint by an employee of the telephone company who had received a shock from a conduit in one of the buildings involved. Rejecting appellees' suggestion that this Court take judicial notice that an incompetent repairman could injure or kill a telephone user by connecting the television lead-in to the high voltage of a television set, this Court in a footnote to its opinion stated:

"We may take judicial notice of the presence of lethal voltages in television sets. (citing cases) But in view of appellants' vigorous denial that an incompetent repairman could cause injury in the manner suggested, we think the hazard appellees fear must be established by competent evidence." (under-scoring supplied)

Such competent evidence cannot be found in the Electrical Code.

D. C. Code Section 1-719 (1961) authorizes appellees to promulgate rules and regulations respecting the production, use and control of electricity which will afford safety and convenience to the public. Pursuant thereto, and over the course of the years, the Commissioners have adopted an Electrical Code consisting of about 440 pages, of which only 6 pages deal with radio and television equipment under Article 810. Reference is repeatedly made throughout the Code to "light, heat and power." For example, Section 1141 deals with permit requirements for installations involving light, heat or power; Section 1143 refers to plans and specifications for electrical systems; and 1161 deals with inspections of electrical work. We note that Section 3011 of this Code does prohibit telephone, telegraph systems, signal or radio systems, in the same enclosure with light or power systems which is readily understandable. Section 8012 deals with the separation of conductors of electric light and power circuits; Section 8103 prohibits the erection of outdoor antennas within two feet of a light or power conductor; and Section 8112 prohibits outdoor antennas from crossing over electrical light or power circuits. The reasons for these prohibitions are obvious, but the fact that telephone and TV antenna lines may be run through a building without being enclosed in a metal raceway underscores the total absence of any element of hazard or danger. Section 3011 permits light or power systems in the same enclosure if 600 volts or less are involved; and if more than 600 volts are involved, they are required to be in separate or partitioned enclosures. By contrast, telephone and TV antenna lines have such a minute energy output that it is measured in terms of

microvolts. Moreover, each of the telephone and TV antenna lines involved in this system are separated from the other by well-insulated, continuously and firmly-fixed non-conductors of flexible tubing, and are of the highest quality endorsed by the Underwriters Laboratory; and enclosing both lines in a metal conduit provides a greater margin of safety, if that is possible, than if they were run together not enclosed.

Appellees did not and could not establish by any competent evidence that there is any hazard involved in this system. They offered not one competent witness who had inspected this system and who could testify that any danger or hazard exists, or that there is any reasonable relationship between the prohibited installation and the health, safety and welfare of the public. Appellees' position in essence is simply this: Section 8123.2 is copied from the National Electrical Code (JA 17) and what is good enough for the National Code is surely good enough for the District Code. District officials charged with the responsibility of administering this Code do not understand either the purpose sought to be served or the applicability of this regulation to these circumstances. The fact is that the District had never before construed this Section 8123.2 of the Electrical Code to prohibit running television antenna lines and telephone lines in the same conduit. This was stated in the complaint (JA 8); it was one of the factors considered by this Court in its first opinion; and Paragraph 6 of the stipulation (JA 123) states precisely that. Such past administrative practice by District officials is entitled to great weight. This administrative practice and the official interpretation put upon the regulation involved should have been binding on the Board and the lower court. In Coombe et al v. United States (55 App. D.C. 190, 3 F 2d 714) this Court stated:

"The rule that established administrative practice shall be given great weight in determining the meaning of doubtful statutes or regulations is a wise one and founded on sound principle. The citizen has a right to rely on long-continued administrative practice and on official interpretations which have long determined the manner

and method of executing ambiguous laws and regulations. To hold otherwise would leave the citizen at the mercy of new constructions, endangering his business after he had adjusted himself in good faith to an administrative practice that he had every reason to regard as firmly established."

Whatever may be said about the presumption of validity which usually attaches to a municipal ordinance or regulation, in the light of the circumstances of this case such a presumption, if any, has long since been eliminated from this case because of an established contrary policy. Thus, by its own administrative practice, the District has recognized that there is no hazard or danger involved in such a system, and Section 8123.2 does not apply.

Counsel for the appellees advised the Board at the second hearing that ". . . . the District Government, not having done independent research on this section, relied upon the findings of the National Electrical Code. . . .," but he offered no evidence or explanation as to what constituted such findings. In the next breath, however, counsel for appellees stated ". . . . Therefore, in best trying to prepare for this case, and in anticipating the present Board who most likely would follow the same reasoning that the previous Board did, I sought out expert advice as to the hazards involved in this. . . ." (JA 27). It developed, however, that this so-called "expert advice" was a far cry from the kind of "competent evidence" required by this Court. In answer to a letter prepared and mailed by an employee of the District (who had nothing to do with this case), a Mr. Geiges in California, connected with the National Code Committee, in response to an inquiry based upon sketchy and limited facts, guardedly stated that it would seem that such an installation would not comply with the literal wording of the Code section involved (JA 127). These letters were received over the strenuous objection of appellants because the facts were not fully and fairly stated, Geiges was not subject to cross-examination, the abstract opinion did not begin to meet the basic issue involved, namely the applicability or

the validity of Section 8123.2 as it relates to this case, and neither of these gentlemen had ever seen or inspected the installation involved. It needs no citation of authority to establish that this letter from Geiges is a classic example of a clear violation of the hearsay rule and should not have been received. We have been unable to find any support for its admission under any exception to that rule. The author was not subject to cross-examination, he was out of the jurisdiction and unavailable; and appellees did not seek to take his deposition. It was a strange way indeed to attempt to prove a violation of a regulation which the appellees themselves had adopted and promulgated without knowing why. This then was the kind of "expert advice" which the District sought to use as the basis for establishing "by competent evidence" the hazard feared by appellees.

The only witness for appellees who had actually seen this installation was the District employee, John W. Lewis. He repeatedly stated that he was not an expert and therefore not qualified or competent to testify about this installation, nor could he state that it was in any way hazardous. Certainly appellees have had ample opportunity during the past three years to obtain competent experts who could inspect and actually testify about this installation. They could have done so at the first hearing before the Board of Appeals and Review, before the lower court after the complaint was filed, again after this Court rendered its opinion on the first appeal and before the second Board of Appeals and Review, and finally in the presentation of this case to the lower court. Despite the admonition of this Court that ". . . . the hazard that appellees fear must be established by competent evidence," and with the presence in this jurisdiction of literally hundreds of qualified, competent experts in this field, appellees inexplicably, for reasons best known to themselves, failed to produce any such competent testimony. We are almost compelled to the conclusion that appellees surely must have had an expert inspect this system only to learn what all our experts concluded - that there is no danger or hazard involved. In this

connection it should be noted that near the conclusion of the second hearing before the Board appellants' counsel requested counsel for appellees to state for the record whether they had any witness who, by his experience and background, had examined the installation involved here and who would be competent to testify at the hearing. The cryptic reply was that "I believe that counsel's question can be reserved for argument. Mr. Robins has put on the case for the Department and has rested on that case" (JA 119-120).

We believe it was extremely important that the parties submit competent, qualified, expert witnesses who could be examined regarding this installation. It is quite remarkable that in two days of hearings, the District failed to produce a single witness who had inspected this particular installation, and who could testify that there is any danger or hazard involved in this system! This is all the more remarkable when we consider that within this metropolitan area there are hundreds, perhaps thousands, of highly skilled specialists, technically educated and trained personnel, both in Government service and private industry, any number of whom could have made an actual inspection of this installation and who could have testified with respect thereto. But this is precisely what the plaintiffs did! They produced several disinterested, highly-qualified experts, technically educated, experienced and trained in the field of electronics and physics.

It is interesting to note, too, that at the de novo hearing before the Board, appellees did not offer any testimony as they did in the first hearing, relating to the complaint of a telephone company employee about a shock he had received when he touched a conduit in this building. Instead, appellees sought to inject a new note never previously mentioned in these proceedings, the fear of lightning, presumably because an antenna usually is considered to be the high point of a building, and therefore, might appear to be a natural target for lightning. So, appellees offered the testimony of one who presumably had some academic knowledge on the subject. Mr. Lloyd, an employee of the Bureau of Standards,

discussed generally the problems and the hazards sometimes created by this unpredictable element of nature. But, for some reason known only to appellees, Mr. Lloyd was not requested to and, therefore, did not inspect the installation involved; so he simply could not testify concerning this installation which was the subject matter of the hearings, nor its relationship to the Electrical Code or any of its provisions.

"The nonproduction of evidence that would naturally have been produced by an honest and therefore fearless claimant permits the inference that its tenor is unfavorable to the party's cause." [Wigmore on Evidence, 3rd Ed., Vol 2, Sections 284-292]

This failure of the District to produce any competent witness to testify concerning the alleged hazard, and to relate this installation and Section 8123.2 to the health, safety and public welfare test, creates something more than an inference or presumption unfavorable to the position taken by the appellees. We submit that under these circumstances when appellants have continuously challenged the appellees to produce such evidence, and in the light of the caveat of this Court in the footnote to its previous opinion, the silence of the appellees and their apparent reluctance to explain their failure to produce such evidence results in something more than a presumption -- it is equivalent to an admission on the part of appellees that there is no danger or hazard and that either Section 8123.2 is inapplicable or invalid as it relates to these circumstances.

Cf. Alexander v. Blackman, 26 App. D.C. 541, 551 (1906)
Rappaport v. Capital Traction Co., 48 App. D.C. 359 (1919)
Evans v. Bell, 49 App. D.C. 238, 263 F 634 (1920)

In sharp contrast, four experts testified on behalf of appellants. Each was eminently qualified by education, training and long practical experience in this field; each had carefully examined the installation;

all agreed that this system was installed in a first-class, workmanlike manner, with quality materials which met the highest standards of safety; that the installation was the best known to the science at the present time; that there was no danger or hazard involved; that if this TV antenna system were wholly enclosed within its own metal conduit, or installed some distance away from the telephone lines and not in the conduit, such an installation would not be at all superior to the existing one; indeed, if anything, enclosing the TV antenna system in a metal conduit, as was done in this case, adds to the safety of the system; that this system was in full compliance with the National and local Electrical Codes; that the "lead-in" line referred to in Section 8123.2 refers to the antenna line leading from the antenna mast on the roof to the amplifier in the basement; that this line was run between these points in a metal conduit which contained no other wires; that there is no contact between telephone and TV antenna lines, or between any conductors in this conduit system; and, even if it were assumed that the TV line and telephone line could be exposed to the bare wire and brought into contact with each other, there would be absolutely no danger or hazard involved. This testimony was uncontradicted. More than that, it was readily admitted and conceded below that the telephone company itself utilizes the same kind of dual installations in a single metal conduit or raceway as are involved here.

It was agreed between the parties under Paragraph 7 of the Stipulation (JA 123) that neither TV or telephone lines were or are required to be installed in metal conduits and as previously noted it was also agreed that no permits or inspection of such installations are required by the District. If, for sake of discussion, there is a danger or hazard involved, are we to assume that appellees are derelict in their duty for allowing such installations without requiring permits and inspections? The answer is obvious because it is wholly unreasonable to assume that there is any danger or hazard involved when appellees themselves have concluded that neither permits nor inspections should

be required. We do not contend that, because permits or inspections are not required, violations of the Electrical Code are permitted. On the contrary, it is precisely because there can be no violation under these circumstances that permits and inspections are not required. This has been the consistent practice and custom here for some period of time, and indeed, the appellant Harris had been told by District officials on numerous occasions that no permits or inspections are required for this kind of work.

Even the second Board of Appeals and Review was entirely satisfied that the system here discussed is a good system and in keeping with the present-day knowledge in the field of this science. Although convinced that the danger, if any, is so remote as to be infinitesimal, the Board concluded that it should sustain the action of the Department of Licenses and Inspections because it assumed that the purpose of the regulation was to rule out even a remote potential. However, the Board did not define what was meant by "potential danger" as it pertains to this case, nor did the Board decide on the meaning and application of the term "lead-in," because the Board was uncertain as to what was intended. Being a creature and the alter ego of the D. C. Commissioners, the members of the Board could hardly be expected to declare the regulation invalid, although a reading of the decision leaves the distinct impression that if the Board were autonomous, an altogether different result might have been reached.

There is no doubt that the entire television industry has made remarkably great strides and progress in the field over the past several years, and since the advent of Section 8123.2. (*) When one considers the electronic gadgets and equipment which have been perfected in recent times, it would appear that the District Commissioners and the Department of Licenses and Inspections could well consider a host of new regulations and safety standards to govern television appliances and all the

(*) Section 8123 has been in existence at least since 1951 (See 1951 Electrical Code, 10th Edition, July, 1951.)

paraphernalia connected with this industry. Whatever may be said about defective TV sets per se, or improper repairs made by incompetent mechanics, such matters are not at all germane to this inquiry, for there are no requirements in the Electrical Code for the installation of TV antenna lines and systems of any kind. Absent any relationship to the "public health, safety or general welfare," there can be no support for the position of the appellees in this case.

This situation is not unlike that of the Electrical Contractors Association of the D. C. v. McLaughlin, et al., decided by the lower court in 1957 (153 F. Sup. 653). There the Commissioners had adopted a regulation requiring plans and specifications for proposed electrical installations in excess of 200 amperes to be prepared and signed by registered, professional electrical engineers. The lower court held that regulation to be illogical, unreasonable, arbitrary and capricious, because it bore no relationship to the factors of public health, safety or general welfare, and only resulted in discrimination against the electrical industry, and inevitable increased costs to the consuming public. The same reasoning and conclusion should be applied here.

We inevitably return to the mandate of this Court that ". . . . the hazard appellees fear must be established by competent evidence." It is clear that the appellees have not offered any such evidence as would support their position then or now.

CONCLUSION

For the reasons discussed above, it is submitted that Section 8123.2 of the D. C. Electrical Code is not applicable to the installation involved herein, nor is it relevant thereto; alternatively, that Section should be held invalid. The judgment of the lower court should be reversed with directions to enter an appropriate judgment in favor of the appellants.

Respectfully submitted,

MAURICE FRIEDMAN

1001 Connecticut Avenue, N.W.
Washington, D. C. 20036

Attorney for Appellants

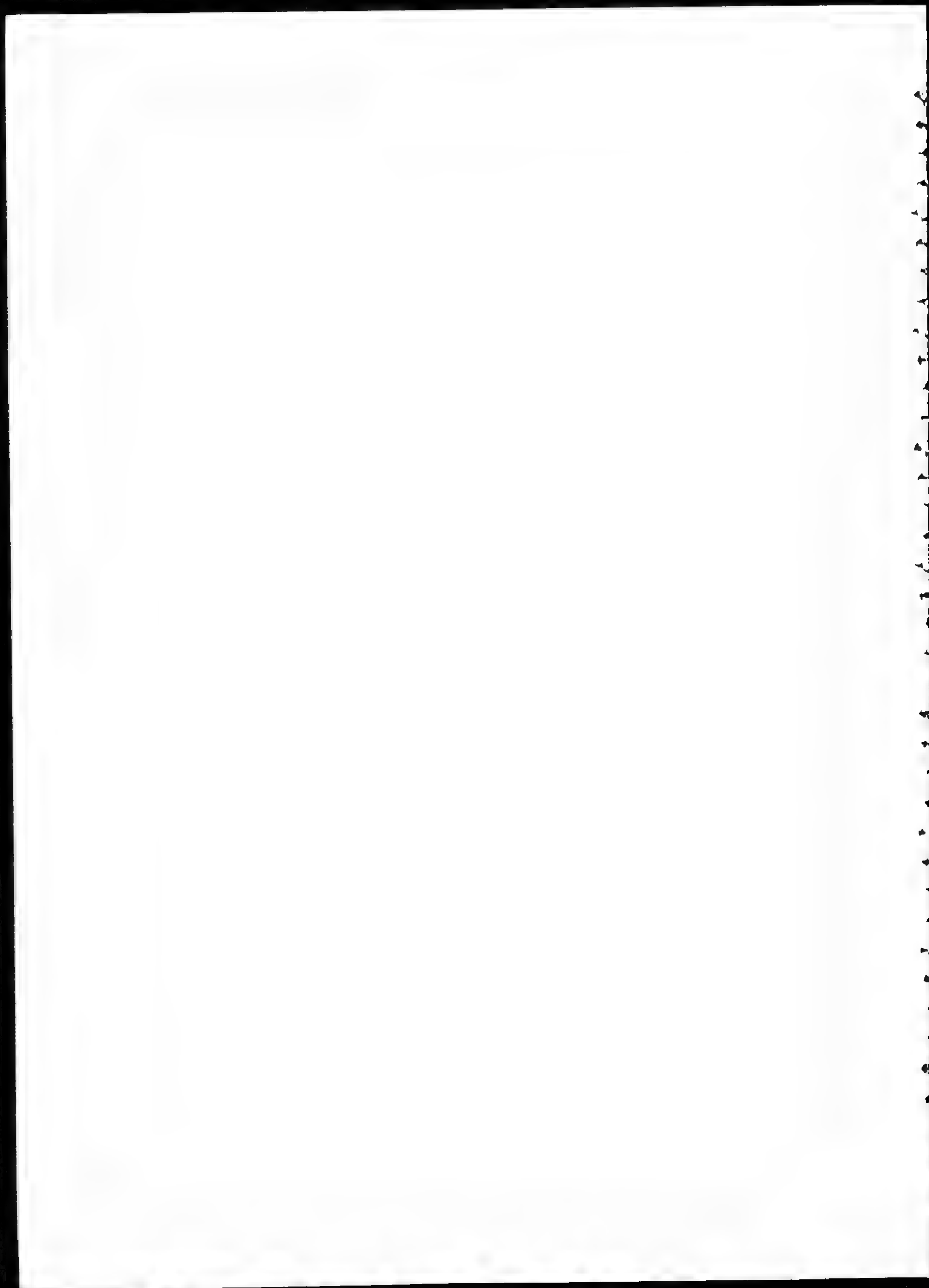
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JOINT APPENDIX

IN THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF COLUMBIA

ROBERT A. HARRIS
T/A Electrical Associates
2021 M Street, N.W.

and

RIGGS INVESTMENT CORP.
A body corporate
1700 Eye Street, N.W.
Washington, D. C.

Plaintiffs

vs.

Civil Action No. 1510-61

WALTER N. TOBRINER, President
ROBERT A. McLAUGHLIN

and

BRIG. GEN. F. S. CLARKE
Board of Commissioners
District of Columbia
Washington, D. C.

Defendants

DOCKET ENTRIES

<u>Date</u>	<u>Proceedings</u>	
<u>1961</u>		
May 17	Complaint, appearance	filed
May 17	Summons, copies (3) and copies (3) of Complaint issued All ser 5/18/61	
June 7	Motion of defts to dismiss or for summary judgment; P&A; affidavits (4); c/m 7/6/61; MC 6/7/61; appearance of Chester H. Gray, John A. Earnest, Jr. and John F. Middle- ton.	filed
June 8	Statement of material facts by defts; c/m 6/8/61.	filed

<u>Date</u>	<u>Proceedings</u>
<u>1961</u>	
June 15	Points and authorities of pltfs in opposition to defts motion to dismiss for summary judgment; c/m 6/14/61. filed
June 15	Statement of genuine issues by pltf; c/m 6/14/61. filed
July 11	Motion of pltfs for reconsideration; c/m 7/10/61; affidavit; memo; MC 7/11/61. filed
July 17	Order granting deft's motion for summary judgment. (N) Tamm, J.
July 31	Notice of appeal by pltfs from order 7/17/61; copies to Corp. Counsel. Deposit \$5.00 by Friedman. filed
Sept. 8	Record on Appeal delivered to U.S. Court of Appeals; Deposit \$.80 by Friedman.
Sept. 8	Receipt from U.S. Court of Appeals for original record. filed
Oct. 31	Order denying pltfs motion for reconsideration of defts motion to dismiss or in the alternative for summary judgment. (N) Tamm, J.
Nov. 2	Notice of appeal by pltfs from order 10/31/61. Deposit \$5.00 by Friedman. Copy to Corp. Counsel. filed
Nov. 3	Order directing Clerk to transmit forthwith the record to US Court of Appeals. (N) Micro 11/2/61. McGarraghy, J.
Nov. 7	Record on appeal delivered to USCA. Deposit by Friedman \$.95.
Nov. 7	Receipt from USCA for original papers. filed
<u>1962</u>	
May 21	Motion of deft to remand cause to Board of Appeals & Review for D.C.; P&A's; affidavit; c/m 5-21-62; M.C. 5-21-62. filed
May 22	Certified copy judgment United States Court of Appeals remanding to United States District Court appellants to recover their taxable costs; opinion attached. filed
May 25	Points & Authorities of pltffs in opposition to motion to remand; c/m 5-24-62. filed
May 29	Original record returned from United States Court of Appeals. filed
June 7	Order granting deft Board of Commissioners, D.C.'s motion to remand cause to Board of Appeals & Review for the District of Columbia for a de novo hearing; record of said hearing to be filed in thirty days. (N) Hart, J.

<u>Date</u>	<u>Proceedings</u>	
<u>1962</u>		
June 21	Bill of costs as taxed by United States Court of Appeals in sum of \$165.54.	filed
July 9	Memorandum of debts per order of 6-7-62; c/m 7-9-62; affidavit; exhibits A-1; A-4 thru A-10; A-2; A-3.	filed
<u>1963</u>		
Jan. 8	Motion of plaintiffs. for judgment in favor of plaintiffs. memo, statement, c/m 1-7-63, MC 1-8-63.	filed
Jan. 21	Motion of debts. for extension of time to oppose plaintiffs motion for summary judgment, P&A, c/m 1-21-63, MC 1-21-63.	filed
Feb. 7	Order granting defendants an extension of time to oppose motion for summary judgment to and including February 11, 1963.	Jones, J.
Feb. 15	Memorandum of P&A in opposition to plaintiffs motion for judgment or summary judgment, c/m 2-15-63.	filed
Feb. 19	Cross-motion of debts. for summary judgment, P & A and statement, c/m 2-19-63. M.C. 2-19-63.	
Mar. 1	Opposition by plaintiffs to cross-motion of debts for summary judgment; c/m 2-28-63.	filed
Mar. 4	Consent order extending time to oppose plaintiffs' motion for summary judgment. (N)	Jones, J.
Mar. 8	Motion and cross-motion for summary judgment argued and submitted. (Rep. Kaitz)	Matthews, J.
June 6	Order denying plaintiff's motion for summary judgment; granting defendant's cross motion for summary judgment & dismissing complaint. (N) (AC/N)	Matthews, J.
June 24	Notice of appeal by plaintiffs from order 6-6-63. Deposit \$5.00 by M. Friedman. Copy to Corporation Counsel.	filed
July 3	Cost bond on appeal by plaintiff in sum of \$250.00 with Glens Falls Insurance Company approved;	Curran, J.
July 11	Exhibit by plaintiff.	filed

[Filed May 17, 1961]

**COMPLAINT TO SET ASIDE DECISION OF
D. C. BOARD OF APPEALS AND REVIEW,
FOR DECLARATORY JUDGMENT AND INJUNCTION**

1. The jurisdiction of this Court is based upon Title 11, Section 301 et seq. of the District of Columbia Code (1951 Ed.) and Title 28, Section 2201 of the United States Code.

2. The plaintiff, Robert A. Harris, is a resident of the District of Columbia, duly licensed and bonded as an electrical contractor in the District of Columbia, and is engaged in the electrical contracting business under the trade name of Electrical Associates. The plaintiff, Riggs Investment Corporation, is a Delaware corporation, duly registered and doing business in the District of Columbia, and the owner of the real estate described herein, located at 5601-5609 - 2nd Street, N.E., in the District of Columbia.

3. The defendants, Walter N. Tobriner, Robert A. McLaughlin and Brig. Gen. F. S. Clarke, are sued in their capacity as members of the Board of Commissioners of the District of Columbia.

4. By an Act of Congress approved April 26, 1904, the Commissioners of the District of Columbia were authorized and empowered to make from time to time such rules and regulations respecting the production, use and control of electricity for light, heat, and power purposes in the District of Columbia not inconsistent with existing laws, as in their judgment will afford safety and convenience to the public.

5. By Act of Congress approved December 20, 1944 (58 Stat. 819, Sec. 1-246 D.C. Code 1951 Ed.), said Commissioners were authorized and empowered to transfer to, impose upon, vest and delegate in the Director of Inspection of the District of Columbia and to the Director of the Department of Licenses and Inspections, full authority to control the installation, erection, maintenance and report of all such electric wiring and apparatus within the District of Columbia, and to administer the Electrical Code for the District of Columbia as adopted and revised from time to time by said Commissioners. Under date of August 14, 1957, by order

of said Board of Commissioners, the rules and regulations of "The 1957 Electrical Code" were adopted by said Board of Commissioners; and the construction, interpretation and applicability of certain of these rules and regulations described hereinafter are involved in this proceeding.

The purpose and scope of said 1957 Electrical Code are defined therein as follows:

"The purpose of this Code is the practical safeguarding of persons and of buildings and their contents, from electrical hazards arising from the use of electricity or light, heat, power, radio, signaling and for other purposes."

6. During 1959, a multiple family apartment building was erected on premises which are now known as 5601-5609 - 2nd Street, N.E., in the District of Columbia; and during the construction, metal conduits were installed for, on behalf of, and paid for by the plaintiff owner thereof, Riggs Investment Corporation. The Chesapeake and Potomac Telephone Company was permitted by the owner thereof to utilize said metal conduits for running telephone wires therein for use by the various tenants of said building. After the construction was completed and the premises occupied, and some time prior to September, 1960, the plaintiff owner of said property, Riggs Investment Corporation, contracted with the plaintiff, Robert A. Harris, for the installation of a master television antenna system utilizing said owner's metal conduits for lead-in antenna wires running to the various apartments in said project for the benefit of the tenants thereof; and said system was installed by the plaintiff, Robert A. Harris, in a safe, competent and workmanlike manner.

7. Prior to the installation of these antenna wires as aforesaid, no applications for permits had been required by the District of Columbia, or by its Department of Licenses and Inspections, and no permits had been issued for such work. On the contrary, the plaintiff, Robert A. Harris, had previously been advised by the Electrical Section of said Department that no application for a permit was required for such work, that such permits were not issued, and that no inspection was ever made or required of such work. Under said Electrical Code of 1957, neither

antenna lines nor telephone wires were or are required to be enclosed in metal conduits.

8. On or about September 20, 1960, the plaintiff, Robert A. Harris, received a communication from the Chief of the Electrical Section of the District of Columbia Department of Licenses and Inspections, advising said plaintiff that an inspection of premises 5601-5609 - 2nd Street, N.E., disclosed a violation of Article 810, Section 8123.2 of the D. C. Electrical Code, and ordered corrections to be made within 30 days from the receipt of said notice. Said plaintiff replied to said notice, and requested an opportunity for a conference, which was not granted.

9. Promptly thereafter, said plaintiff, Robert A. Harris, filed his written notice of appeal to the Board of Appeals and Review, established in Part VIII of Reorganization Order No. 55, as amended on July 12, 1960. A hearing before said Board of Appeals and Review took place on October 20, 1960, at which time evidence was offered in support of said plaintiff's appeal, and on behalf of the Department of Licenses and Inspections in support of its order of September 29, 1960, above referred to. Thereupon, the hearing was concluded, memoranda were filed both on behalf of said plaintiff and on behalf of the Department of Licenses and Inspection, through the office of the Corporation Counsel for the District of Columbia, and said Board of Appeals and Review took the matter under advisement.

10. Said Board of Appeals and Review did not decide the case, but instead re-scheduled the appeal for another hearing before said Board of Appeals and Review, on February 23, 1961, and further testimony and evidence was adduced.

11. Under date of March 17, 1961, the plaintiff, Robert A. Harris, received a decision by registered mail, which was mailed on March 16, 1961, from the said Board of Appeals and Review, which rendered its "findings of fact and conclusions of law" as follows:

"The Board finds that there is a clear violation of Article 810, Section 8123.2 of the 1957 Electrical Code. The action of the Department of Licenses and Inspections is therefore sustained."

12. On or about March 17, 1961, the plaintiff, Robert A. Harris, filed his motion or petition for reconsideration with said Board of Appeals and Review, requesting that it reconsider its said decision, findings of fact and conclusions of law. By notice dated April 20, 1961, received by said plaintiff on May 9, 1961, said Board of Appeals and Review advised said plaintiff that said motion for reconsideration was denied.

13. The plaintiffs herein have exhausted their administrative remedies, and are without adequate remedy at law to challenge or otherwise obtain relief from the decision of the said Board of Appeals and Review except by this action; and unless this Court will grant the plaintiffs appropriate relief, the television antenna lines will be required to be removed from said building, and otherwise replaced at a substantial cost; otherwise, the plaintiff, Robert A. Harris, will be threatened with criminal prosecution by the District of Columbia for failure to comply with said order of the Department of Licenses and Inspections.

14. Said Section 8123.2 of Article 810 of the 1957 D. C. Electrical Code provides as follows:

"8123.2 Antennas and Lead-Ins - Indoors. Indoor antennas and indoor lead-ins shall not be run nearer than two inches to conductors of other wiring systems in the premises unless (1) such other conductors are in metal raceways or cable armor, or (2) unless permanently separated from such other conductors by a continuous and firmly fixed non-conductor such as porcelain tubes or flexible tubing."

15. Plaintiffs are advised and believe and, therefore, aver:

(a) That Article 810, Section 8123.2 of the 1957 Electrical Code, cited in Paragraph 14 above, is either not applicable to the work done and involved herein; or it is in conflict with other provisions of the 1957 Electrical Code; it is ambiguous; and if the interpretation thereof placed upon it by the defendants and its subordinates is correct, then said section is arbitrary, capricious, and the defendants and their subordinates have exceeded the power and authority delegated to them by Congress

in adopting and promulgating that section or the interpretation thereof.

(b) Said regulation is inapplicable to the situation here presented because there is no authority for its promulgation, particularly since it bears no reasonable relationship to health or safety or public welfare.

(c) Said regulation is inapplicable because the testimony adduced before the Board of Appeals and Review is uncontraverted and undisputable that there are present no factors of safety or health or public welfare.

(d) Said regulation is not applicable because the 1957 Electrical Code does not require by its terms that either telephone or TV antenna lines be enclosed in metal conduits; in fact such lines may be run fastened to walls or molding in any manner desired by the owner of the premises involved; or they may be run together or separately without being enclosed in such metal conduits.

(e) Said regulation is also inapplicable because by custom and practice in the District of Columbia, neither permits were or are required for the installation of such lines, nor have inspections been required after such work has been installed in the past; and the plaintiffs relied upon such custom and practice in the installation of the TV antenna lines involved herein.

(f) Said section is ambiguous and in conflict with other sections of the 1957 Electrical Code, because for all practical purposes light, heat or power are not involved in the work installed and involved herein.

(g) The interpretation and construction placed upon Article 810, Section 8123.2 of the 1957 Electrical Code by the defendants and their subordinates is grossly inequitable, unreasonable and without basis, either in reason or in law; neither the electrical industry nor the public, before the instant case, have ever been apprised of the construction and interpretation now being contended for by the District of Columbia under the circumstances here presented; and never prior to the instant proceedings has the District of Columbia construed the provision of the Code above cited to be applicable to the circumstances presented herein.

(h) The interpretation and construction placed upon said section of the Electrical Code is illegal and unwarranted; there is neither danger nor hazard to life or property involved; nor is there any corresponding benefit either to the owner of the building, the tenants thereof, or to the public.

WHEREFORE, the premises considered, plaintiffs pray:

(1) That this Court reverse, revoke, rescind and set aside the decision of the District of Columbia Board of Appeals and Review;

(2) That the Court reverse, rescind, revoke, set aside, and hold for naught an order of the Chief of the Electrical Section of the District of Columbia dated September 20, 1960;

(3) That this Court enter a declaratory judgment against the defendants and their subordinates so as to order and decree that Article 810, Section 8123.2 of the 1957 Electrical Code is not applicable to the circumstances herein presented; or, alternatively, that the interpretation placed upon said section by the Board of Appeals and Review and the Chief of the Electrical Section be held to be erroneous, illegal, and unwarranted;

(4) That this Court declare, in the alternative, the action of the defendants in promulgating said Section 8123.2 of the 1957 Electrical Code to be arbitrary, capricious, illegal and void;

(5) That this Court issue a preliminary, temporary and permanent injunction restraining and enjoining the defendants and any and all employees of the District of Columbia, directly or indirectly, or in any other manner whatsoever from construing, interpreting or enforcing the provisions of said Section 8123.2 of the 1957 Electrical Code against either or both of the plaintiffs, under the circumstances involved herein;

(6) That this Court issue a mandatory injunction compelling the defendants to set aside, revoke and rescind said Section 8123.2 of the 1957 Electrical Code;

(7) And for such other and further relief as the nature of the case may require and to the Court may seem just and proper.

/s/ Robert A. Harris

RIGGS INVESTMENT CORPORATION

By:

/s/ John F. Brawner

Agent

/s/ Maurice Friedman
1001 Connecticut Avenue, N.W.
Washington 6, D. C.
Attorney for Plaintiffs

DISTRICT OF COLUMBIA, ss:

I, Robert A. Harris, being first duly sworn, depose and say that I am one of the plaintiffs in the foregoing Complaint by me subscribed, and that I verily believe the contents thereof to be true.

/s/ Robert A. Harris

Subscribed and sworn to before me this ____ day of May, 1961.

/s/ Thelma E. Cosby
Notary Public, D. C.
My commission expires 3/14/66

DISTRICT OF COLUMBIA, ss:

I, John F. Brawner, being first duly sworn, depose and say that I am an officer of Riggs Investment Corporation, one of the plaintiffs named in the foregoing Complaint by me subscribed, and that I verily believe the contents thereof to be true.

/s/ John F. Brawner

Subscribed and sworn to before me this 16th day of May, 1961.

/s/ Mary V. Ritchey
Notary Public, D. C.
My commission expires 2/1/64

[Filed May 21, 1962]

**MOTION OF DEFENDANT BOARD OF
COMMISSIONERS, D.C., TO REMAND
THIS MATTER TO THE BOARD OF
APPEALS AND REVIEW OF THE
DISTRICT OF COLUMBIA**

The defendant Board of Commissioners, D. C., moves the Court to remand this matter to the Board of Appeals and Review for the District of Columbia for a de novo hearing and, as grounds for this motion, states as follows:

1. This civil action is one to enjoin the enforcement of Article 810, Section 8123.2 of the Electrical Code of the District of Columbia. The action raises questions concerning the authority of the Commissioners of the District of Columbia to promulgate the above specified regulation, the applicability of said regulation to the subject matter involved, and the propriety of the action of the Board of Appeals and Review in denying plaintiff Harris' appeal to it from the decision of the Department of Licenses and Inspections for the District of Columbia.

This suit was initiated by the filing of a complaint on May 17, 1961. Thereafter, on July 17, 1961, a motion on behalf of defendants for summary judgment was granted by this Court. Plaintiffs appealed the order entering summary judgment and, on May 3, 1962, the United States Court of Appeals for the District of Columbia reversed the aforesaid judgment and remanded the case for further proceedings in accordance with its opinion. The opinion of the United States Court of Appeals clearly indicates that a review by this Court of the decision of the Board of Appeals and Review must be on the entire record made before that Board.

3. The hearing before the Board of Appeals and Review was recorded by a mechanical device, which, at the time of the hearing, appeared to be operating properly. However, since the hearing it has been determined that due to a malfunction of the machine and due to noise created from sandblasting taking place outside of the building where the hearing was being conducted, the recordings of the hearing are defective.

Because of this, the Board of Appeals and Review is unable to produce a transcript of the hearing.

4. Substantial issues raised by the complaint concern the applicability of the aforementioned regulation to the electrical work performed by the plaintiffs prior to this suit and the propriety of the action of the Board of Appeals and Review in failing to grant plaintiff Harris the relief he sought. Since the Court is called upon to review the action of the Board of Appeals and Review, it is essential that the Court have a complete administrative record of that body before it.

5. Inasmuch as it appears from the affidavit of Jane F. Gatling, which is attached hereto and by reference incorporated herein as Exhibit "A", that it is impossible to produce a stenographic transcript of the hearing, the District of Columbia therefore urges the Court to remand the matter to the Board of Appeals and Review for a de novo hearing.

/s/ Chester H. Gray
Corporation Counsel, D. C.

/s/ John A. Earnest
Assistant Corporation Counsel, D. C.

/s/ H. Thomas Sisk
Assistant Corporation Counsel, D. C.

Attorneys for Defendants
District Building
Washington 4, D. C.

[Certificate of Service]

do anything more than simply report a record to the Court under the order of Judge Hart.

* * * * *

18 JOHN WILLIAM LEWIS

was called as a witness and, having been previously duly sworn, was examined and testified as follows:

19 DIRECT EXAMINATION

BY MR. ROBBINS:

Q. State your full name. A. John William Lewis.

Q. What is your occupation, Mr. Lewis? A. Chief, Electrical Section, Department of Licenses and Inspections.

Q. How long have you been so employed? A. Since about 1954.

Q. That's as Chief of that Section? A. Yes.

Q. What was your previous employment? A. I was a field inspector.

Q. How long have you been with that Electrical Section of the District of Columbia Government? A. Since '48; 1948.

Q. Now, Mr. Lewis, are you familiar with Section 8123.2 of the D. C. Electrical Code? A. Yes.

Q. As a matter of fact, you inspected these premises, did you not? A. Yes.

Q. And did you write the first, the original violation notice? A. Yes.

* * * * *

20 Q. Can you describe for this Board, Mr. Lewis, the type of installation used on the two wires here involved? A. Well, when we went there to the job, of course, there was an antenna on the roof and the lead-in conductors coming down on the outside of the building, they came in through the building wall to the booster, then from the booster then went over -- that is, these television wires, the lead-in wires, they went over the wall and through the conduits, and that also inclosed the telephone conductors.

Q. Let me ask you this question: Is either wire insultated with continuous and firmly fixed non-conductors such as porcelain tubing?

* * * * *

21 THE WITNESS: No, sir.

* * * *

BY MR. ROBBINS:

Q. Mr. Lewis, you said you inspected that? A. Yes.

Q. Very well. Did you prepare a sketch of that? A. Yes.

Q. Was a drafting made from the sketch you prepared? A. Yes.

(Document handed to the witness).

Q. See if that is it. A. This is it.

Q. Is that it? A. This is the sketch.

MR. ROBBINS: Mr. Friedman, you have seen that?

MR. FRIEDMAN: I think that is substantially it, but we do have a model here of the whole set up. But I think this is correct.

MR. ROBBINS: I would like to have that introduced as the Department's Exhibit, Mr. Chairman.

THE CHAIRMAN: Any objection?

* * * *

22 MR. FRIEDMAN: * * *

Let me reserve my objection to that because I haven't had a chance to go over it thoroughly with my client.

(Whereupon, the document referred to was marked Government's Exhibit No. 1 for identification and was received in evidence.)

BY MR. ROBBINS:

Q. How long have you been engaged in electrical work, sir?

A. About twenty years, or twenty-five years.

Q. Now you are familiar, as you have testified, with the layout there, is that correct? A. Yes.

Q. Now, do you know of your own knowledge how the television antenna lead-ins were placed into the same conduit with the telephone wires?

A. Well, sir, they were more than likely fished in.

MR. FRIEDMAN: Well, now, do you know, Mr. Lewis?

THE WITNESS: No, sir, I don't really know.

* * * *

23

BY MR. ROBBINS:

Q. Do you know of any other way of fishing them in in which they could have been put in there? A. No, sir.

* * * *

Q. Now, the telephone wires in there, were they the old style wires, that is, with the cloth covering, or were they newer ones?

A. The newer ones.

* * * *

THE CHAIRMAN: * * *

What is the difference between the old and the new ones?

MR. ROBBINS: Can you explain that, Mr. Lewis?

THE WITNESS: No, sir, I'm not too familiar with telephone wires; but I know they do have this new type out. That's the one.

* * * *

24

BY MR. ROBBINS:

Q. Mr. Lewis, you said, I believe, you knew of no other way of getting them in but fishing them in, that these could be gotten in there; is that correct? A. No, sir, I don't.

Q. Would fishing these in, considering the number of elbows and bends that this would have to go through, could this harm the wiring in there?

MR. FRIEDMAN: I object to this question. We aren't dealing with conjectural items, whether it could or couldn't; the question is, Was there any harm done to this system at all, either system.

I object to any conjecture and speculation.

* * * *

25

MR. ROBBINS: I will phrase it as a hypothetical question.

THE CHAIRMAN: Suppose we treat it as such.

MR. ROBBINS: All right, sir.

THE CHAIRMAN: The objection is overruled.

BY MR. ROBBINS:

Q. Just answer the question. A. Yes. Any time it's necessary

to fish it in you can and may injure other conductors in the pipe, or the conductor itself that you are fishing in.

Q. Now, Mr. Lewis, are you a member of any panel on the National Electrical Code Committee? A. Yes, sir.

Q. Which panel? A. Panel 15.

Q. What does that consist of, sir? A. Well, that consists of communications and stage equipment.

Q. Now, how long have you been on that panel, sir? A. Well, I have been on it about three years, as an alternate and a member.

26 Q. All right, sir.

Now, are you familiar with the National Electrical Code? A. Yes.

Q. Are you familiar with Section 810-18(b) of the National Electrical Code? A. Yes.

* * * * *

Q. Mr. Lewis, I wonder if you would be good enough to read Section 810-18(b) of the National Electrical Code.

(Handing document to the witness.)

A. It says: "Antennaes and Lead-ins, indoors,--"

MR. FRIEDMAN: I don't think it's necessary to read it. We have a copy here. We both can refer to it and make references.

MR. ROBBINS: Will you then stipulate the provisions of the District of Columbia Electrical Code are exactly the same as that, sir?

* * * * *

27 MR. ROBBINS: Mr. Friedman, did you agree?

MR. FRIEDMAN: Yes, they are both the same.

* * * * *

THE CHAIRMAN: So it's conceded that the provisions of the National Code and the D. C. Code, -- that is, the regulation -- are identical in phraseology?

MR. FRIEDMAN: They are different in number.

THE CHAIRMAN: They are different in number, but not in phraseology.

Is there any particular point in this, Mr. Robbins?

MR. ROBBINS: Yes, there is. I was just laying the groundwork for it, because the work on this particular section wasn't done by the District of Columbia. To the best of my knowledge we took this from the National Electrical Code, and there will be testimony here from members of the National Electrical Code Committee with relation to this particular section.

* * * * *

29 THE CHAIRMAN: Paragraph 6 of the stipulation states:

"Prior to the installation of this master antenna system, no permits had been required for such work by the District of Columbia, or by its Department of Licenses and Inspections, and no permits had been issued for such work; and no inspection was ever made or required of such work."

MR. ROBBINS: That is true.

* * * * *

31 THE CHAIRMAN: Do you know whether or not they sought a permit?

MR. ROBBINS: I understand that Mr. Harris had testified that he asked for a permit for this type of thing and had been told that we didn't issue one.

32 THE CHAIRMAN: Did he ask for it?

MR. ROBBINS: It's not my understanding that he asked for one specifically for this installation, but it's to the best of my recollection that he stated in the past that he had asked. And I would fully admit if Mr. Harris had asked for one today, yesterday or tomorrow he wouldn't be given a permit.

THE CHAIRMAN: What was the answer to his request previously?

MR. ROBBINS: That permits weren't required for the installation of television antenna lead-ins.

THE CHAIRMAN: What more would you expect him to do?

MR. ROBBINS: I expect Mr. Harris, as a master electrician, to be familiar with the Code, sir, especially when there is a very pertinent provision of the Code dealing specifically with the problem at hand.

THE CHAIRMAN: Wouldn't a normal answer be that we will not issue a permit for such an installation, and that if you install it we will order it out?

MR. ROBBINS: No, sir, because this installation wouldn't have been ordered out had it not been run either inside of the same raceway with the telephone wires, or had it been run more than two inches or more separated from it.

* * * * *

33 BY MR. ROBBINS:

Q. I believe the question, loosely stated, is: Based upon your knowledge and experience, etcetera, does the term "wiring system" include telephone wires? A. Yes.

MR. ROBBINS: I have no further questions.

THE CHAIRMAN: And television wires?

MR. ROBBINS: Well, Your Honor, --
Well, go ahead.

THE WITNESS: Well, as far as the television wires are concerned, I don't think I am too competent to answer that; but as far as telephone wires are concerned, that is a definite wiring system.

* * * * *

CROSS EXAMINATION

BY MR. FRIEDMAN:

* * * * *

42 Q. Now, Mr. Lewis, you say you inspected this site, this system?
A. Yes.

Q. Did you inspect to see whether or not there were any exposed, bare, naked telephone lines or exposed, bare, naked television antenna lines in this system? A. Yes.

Q. Did you find any? A. No, sir.

* * * * *

49

REDIRECT EXAMINATION

BY MR. ROBBINS:

Q. Mr. Lewis, you were asked a question as to whether or not you had inspected the various wires to see if there was any damage. A. Yes.

50

Q. Did you pull the wires out of the conduits?

* * * *

A. No, sir, just a visual inspection.

Q. Did you actually pull any of the wire out at all out of the conduits? A. No, sir.

* * * *

51

FURTHER EXAMINATION BY THE BOARD

BY MR. HALLER:

Q. Mr. Lewis, -- A. Yes.

Q. -- the TV lead-in lines that were introduced in the metal raceway, could you tell me the diameter of that wire? A. Sir, I can't -- I'd say this one here, this would be about a quarter of an inch, sir.

Q. A quarter inch? A. Yes.

Q. I believe there was some testimony that clearance inside of raceways varied from one-half inch to three-quarters. A. Yes, there was ample space.

Q. Do you happen to know the diameter of the telephone cable? A. No, sir.

* * * *

54

BY THE CHAIRMAN:

Q. I think you testified at this hearing that in your judgment the danger in the set-up was infinitesimal? A. Well, sir, a hazard is created under certain conditions. You have to have conditions, and if you had the conditions it could be hazardous.

Q. But you didn't find those conditions in this case? A. No, sir, not at the time. All we found is conductors running in the pipe.

Q. Well, I understood -- My recollection is that that is what you testified before. A. Yes, sir.

Q. And one other thing: I think you rated Mr. Harris as one of the outstanding electricians in the District of Columbia. A. Yes, I'd say Mr. Harris is a good electrician.

* * * * *

55

RICHARD BURTON

was called as a witness and, having been previously duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. FRIEDMAN:

* * * * *

Q. What is your occupation. A. I am employed by Waggaman-Browner Realty Company, managing agent for the Riggs Investment Corporation, and I am responsible for the management of this particular building in question.

Q. Now, Waggaman-Browner, through the Riggs Investment, own this property? A. That's correct.

Q. You were with that firm prior to construction of this building and during its construction, and since; is that right? A. Yes, I was.

56 Q. Now, can you tell me at whose expense these metal conduits were installed in these buildings? A. They were installed at the expense of the owner of the building.

Q. By whom? A. Electrical Associates, Mr. Harris.

Q. Mr. Harris? A. Yes.

Q. He was paid for that? A. Yes, he was.

Q. For whose benefit were these metal conduits installed, Mr. Burton? A. For the benefit of the owner.

Q. How? In what manner? A. Well, to ease and make less expensive the installation of telephone wires, and, perhaps, this cable we are discussing today.

Q. The TV antenna cable? A. Yes.

Q. Now, your firm permitted the telephone company to install its telephone wires through these metal conduits? A. We did.

Q. And you contracted with Harris at a later time, after construction was completed, to install TV antenna lines utilizing the same metal conduits? A. Yes.

57 Q. That was for the benefit -- for the owner's benefit, as well as the tenants'? A. Well, for the benefit of the tenant through the owner.

Q. Since installation was completed have you had any complaint whatsoever from any of the tenants in those buildings? A. None whatsoever.

Q. Has the television reception been uniformly good and without complaint throughout those apartments that have used that appliance? A. Yes, it has.

* * * * *

CROSS EXAMINATION

BY MR. ROBBINS:

Q. Has the telephone use been uniformly good and without complaint in that building? A. To my knowledge it has.

Q. Now if there were a complaint lodged with the telephone company by one of the subscribers, would that be brought to your attention?

58 A. Not necessarily.

Q. If there were a complaint lodged with regard to television reception would that be brought to your attention? A. Yes, it would.

Q. Why? A. Well, these people look to us for maintenance of this television system. This is one of the features we use in making the apartments attractive to the occupants. It's an inducement to rent.

Q. Was it originally made as an inducement? A. Yes, it was.

Q. Was this antenna system put in originally? A. You mean at the same time the building was completed?

Q. Yes. A. No. It wasn't.

Q. Then how soon after the building was occupied was this television system put in? A. I'm not sure about the exact time, but I do believe it was within the first nine months or year of operation. I might --

May I add something to this?

Q. No, sir.

* * * * *

59 THE CHAIRMAN: Go ahead.

THE WITNESS: The reason this antenna system wasn't installed at the time of construction was primarily because of expense. We made a survey of the area and tests of the area with antenna strength meters, and we felt that we could get by without it. And the first few months of operation showed that our original conjecture was in error. In various parts of the building we got good reception, and in other parts, no. So it was deemed advisable to install this master TV antenna to enable all tenants to get good TV reception.

BY MR. ROBBINS:

Q. Then, sir, let me ask you this: When you originally constructed the building, you didn't intend to put in a TV antenna system? A. We had hoped that it wouldn't be necessary.

Q. Well, you said you had run tests, did you not? A. Yes. The tests were not all completely strong enough for us to be absolutely sure a system --

Q. You had conducted a set of feasibility tests? A. Yes.

60 Q. And you thought it would be best not to put in a television antenna system at that time? A. That is correct.

Q. Didn't you say this was put in for the telephone company to use? A. Yes, I did.

* * * * *

REDIRECT EXAMINATION

BY MR. FRIEDMAN:

Q. Was that your only purpose in installing metal conduits, Mr. Burton? A. It was for the convenience of the telephone company or anybody else that might have occasion to use it.

* * * * *

EXAMINATION BY THE BOARD

BY MR. GILL:

Q. In the construction of the building, these are sort of channels around the conduits, under the floor? A. Yes.

* * * *

61 Q. Are there any more channels available there, or did you just have these channels? A. Well, these channels only. In other words, we were using all channels that are provided.

Q. And all of them are used for telephone wires at the moment? A. Within the best of my knowledge; yes.

* * * *

RECROSS EXAMINATION

BY MR. ROBBINS:

Q. Were these conduits, these raceways that are in question, were they part of the general electrical contract between your firm and Mr. Harris? A. Yes, they were.

* * * *

62 **FURTHER EXAMINATION BY THE BOARD**

BY MR. HALLER:

Q. In your capacity as a property manager, isn't it true it's the usual practice in building apartment houses, similar to this one in question, to provide separate raceways for the telephone lines and a separate one for the TV lead-in line? A. I can't answer it as to the usual practice, since this is the only building we have built in which we have installed master TV antennae.

* * * *

FURTHER RECROSS EXAMINATION

BY MR. ROBBINS:

Q. Your firm, since you have been associated with them, has built other buildings? A. Yes.

63 Q. Were conduits furnished in these other buildings and the telephone company then used them? A. Yes, they were.

Q. Do you know whether this was ever discussed, prior to construction, with the telephone company? A. I imagine it is, but that isn't part of my normal duties, so I don't have anything to say about that.

Q. But from your own knowledge the other buildings that your firm has built, they have had raceways which were used by the telephone company? A. Yes.

* * * * *

FURTHER REDIRECT EXAMINATION

BY MR. FRIEDMAN:

Q. Mr. Burton, you have some buildings, do you not, where you have no metal conduits or raceways? A. We do.

Q. What kind of telephone installation do you have under those circumstances? A. Well, it's normal telephone installation where they drill through floors and walls to run the wires.

Q. And the wires are outside. They are exposed; they aren't inclosed? A. Not inclosed in conduits.

* * * * *

65

BERTRAM MARVIN VOGEL

was called as a witness and, having been previously duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. ROBBINS:

Q. State your full name for the record, please. A. Bertram Marvin Vogel.

Q. What is your employment, Mr. Vogel? A. I am employed as Research and Standards Engineer for the Department of Licenses and Inspections, D. C. Government.

Q. How long have you been so employed, Mr. Vogel? A. I have been employed as research and standards engineer since November of 1958.

Q. Were you with the Department prior to that? A. Yes, I was.

Q. In what capacity? A. I was a structural engineer in the Engineering Branch of the Department of Licenses and Inspections for the issuance of building permits.

Q. Are you a registered engineer in the District of Columbia?

A. Yes, I am.

Q. A professional engineer? A. Registered professional engineer 3521.

Q. How long have you been employed as an engineer, Mr. Vogel?

A. Since 1948.

Q. How, Mr. Vogel, do you have any experience with telephone systems as such? A. During the World War II I was in the United States Navy, and in that capacity as an electrician's mate in the Navy on board ship I was in charge of interior communications, which included telephone systems, fire control radar circuits, etcetera.

* * * * *

67 Q. Mr. Vogel, with regard to your present position as research and standards engineer for the Department of Licenses and Inspections, did you at my request contact the National Electrical Code Committee with regard to Section 8123.2 of the D. C. Electrical Code, and a section
68 which is identical with Section 810-18(b) of the National Electrical Code? A. Yes.

Q. Whom did you contact, sir? A. I contacted the Chairman of Code Panel 15 of the National Electrical Code, K. S. Geiges, and I directed my letter to him at his Santa Clara, California office.

(Document handed to the witness).

Q. I show you this. Is this a copy of the letter you sent to him, sir? A. That is a copy of the letter that I directed to him.

Q. I notice on top there is some handwriting. Is that your handwriting, sir? A. Yes, it is.

Q. It says, "Bill." To whom is that addressed? A. It's addressed to William M. Dripps, Superintendent, Inspection Division, Department of Licenses and Inspections.

Q. And what does that handwriting, that written note, refer to, sir?

MR. FRIEDMAN: I object to testifying about this, Mr. Chairman. This is hearsay evidence of the rankest sort.

69 MR. ROBBINS: I might submit to the Chairman: as the Chairman well knows, at an administrative hearing hearsay evidence is admissible, the only bar being that a finding can't be based solely upon hearsay evidence.

 MR. FRIEDMAN: It has its effect and it has its impact.

 I think we know what we are talking about when we say this is hearsay testimony of the worst kind and leads to abuses and misunderstandings. Nobody from that office is here. That man isn't here. He's not subject to cross-examination. Anybody can bring in a typewritten letter. What good is it? What probative value does it have?

 THE CHAIRMAN: What is the purpose of it?

 MR. ROBBINS: Well, this is -- The District Government, not having done independent research on this section, relied upon the findings of the National Code Committee. Now I have here, as one of the witnesses --

 THE CHAIRMAN: Wait a minute.

 When did it place its reliance upon that Committee?

 MR. ROBBINS: When it originally adopted this section which has been testified to as being the same as the National Code Committee's.

70 THE CHAIRMAN: What difference does it make? The two are identical.

 MR.-ROBBINS: Wherever they got it, they adopted it. What does it have to do with this case?

 MR. ROBBINS: A great deal to do with this case, because over the objections of present counsel for the District of Columbia, at the last hearing testimony was elicited with regard to the hazards, or the safety, of this installation, as to whether or not this was a reasonable regulation. Therefore, in best trying to prepare for this case, and in anticipating the present Board who most likely would follow the same reasoning that the previous Board did, I sought out expert advice as to the hazards involved in this.

Now the National Electrical Code Committee functions, among other things, in giving aid and reports on various things of this nature.

Now Mr. Geiges, to whom this letter was addressed, and from whom we have a return letter -- And furthermore we have with us Mr. Stetka, who is Secretary to the National Code Committee, who can also testify as to the validity of Mr. Geiges' signature.

Mr. Vogel spoke to Mr. Geiges over the telephone, for Mr. Geiges was unable to be here. And furthermore, Mr. Geiges discussed this very matter with Mr. Stetka at a convention in Philadelphia.

71 THE CHAIRMAN: What is the date of that letter?

MR. ROBBINS: The letter was sent on May 22nd.

THE CHAIRMAN: This year?

MR. ROBBINS: Yes; of 1962. And I believe the return bears the date of May the 28th, 1962, from Santa Clara, California.

THE CHAIRMAN: I am afraid I will have to rule it's so remote from this proceedings, and sustain the objection.

And one other thing: I will say this for the purpose of showing a hazard, -- I take it to mean by that a danger, --

MR. ROBBINS: Yes.

THE CHAIRMAN: -- if you will refresh your memory of the testimony of your own witness, it was that the danger was infinitesimal as late as this morning.

MR. ROBBINS: I believe, sir, the record will show he stated that there is a hazard if certain conditions were present, and he didn't find those conditions present in this --

THE CHAIRMAN: I think that is true.

MR. ROBBINS: -- in this system at that time. And I think it is a far cry from that and danger being infinitesimal.

72 MR. FRIEDMAN: We ought to be entitled to hear direct testimony.

THE CHAIRMAN: I sustain the objection, Mr. Friedman. I don't see --

MR. ROBBINS: Am I then to understand the Board of Appeals and Review will now rule out all hearsay testimony, Mr. Chairman?

THE CHAIRMAN: Well, unless it's really pertinent, I will.

MR. ROBBINS: Well, I'd like to ask is this not pertinent, which is dealing directly with the hazard involved? I admit it's hearsay. I also submit that because of the location of this gentleman and the members of the panel who drew up this particular section of the Electrical Code Committee, that this is, for the purposes of this hearing, the best evidence possible.

THE CHAIRMAN: This is to show the danger of the proximity in the same conduit of the television and the wire?

MR. ROBBINS: That is correct, sir.

THE CHAIRMAN: And I haven't read this stipulation as to the expert which Mr. Friedman has offered. I haven't had time.

MR. ROBBINS: The stipulation entered into was that his expert says it was not.

73 THE CHAIRMAN: You are in the know, of course. But as far as this leading situation, the objection was sustained.

MR. ROBBINS: Might I ask the Chair to give the reasons for ruling thusly?

THE CHAIRMAN: It is remote and has no bearing on this controversy, the question you asked this witness.

MR. ROBBINS: I was asking this particular witness the other question, then I asked this witness the question for the purpose of introducing this.

Now, how the Chairman can say that evidence which bears directly on this type of installation as to the reasons for this Code section can be remote from this, the issue at hand, is beyond me.

THE CHAIRMAN: As far as this witness is concerned it is. It may not be true as to another witness.

MR. ROBBINS: The Chair is ruling, then, that when the Department of Licenses and Inspections requests the opinion of an outside expert and he then writes in, and also talks to the requesting party, that that is remote and too remote for the purposes of an administrative hearing?

THE CHAIRMAN: Well, it's about two years after this case arose. And it's certainly pure hearsay.

74 It's a vital thing in this case, if there is any hazard, and these people are entitled to cross-examine any expert who testifies along this line; and this witness can't, except through hearsay. If he can testify of his own knowledge of this hazard, let's hear it.

MR. ROBBINS: Mr. Chairman, do I understand the Chair to mean that the only evidence I am able to put on is direct evidence and the Chair is barring hearsay evidence?

THE CHAIRMAN: I haven't so ruled and may not so rule; but I will in this instance.

MR. ROBBINS: I have no further questions of this witness, though I may wish to recall him.

* * * * *

76 MR. ROBBINS: I would like to direct the attention of the Chair to Rule 5.8 and 5.11.

5.8 reads: "Evidence presented at hearings before the Committee shall be limited to material evidence relative to the issues arising in the proceeding as may be necessary to protect the public interest or to prevent injustice. Evidence will be excluded in the discretion of the Committee if it is repetitious or redundant. The Committee shall determine the materiality, relevance, and probative value of any evidence submitted."

Rule 5.11, Offers of Proof: "Any offer of proof made in connection with an objection taken to any ruling of the Committee, rejecting or excluding proffered oral testimony shall consist of a statement for the record of the substance of the evidence which the person contends would be adduced by such testimony."

THE CHAIRMAN: Yes.

MR. ROBBINS: Now in the first place, with regard to the first evidence that the Chair ruled out on the objection of hearsay, I contend a

77 letter submitted or written by a man, when that man testifies to that letter it is, by no stretch of the imagination, hearsay.

What I wish to put into the record are two letters. One is a letter from the Department of Licenses and Inspections to Mr. Geiges explaining to him the problem and asking for his expert opinion on the matter at hand, and also with regard to the intent -- which would go to what we might loosely call the legislative history -- of Section 810-18(b) of the National Electrical Code which, it is readily admitted, is exactly the same as the section here.

Then I wish to introduce, first of all, the request -- and I have had the man on the stand who requested it. I also wish to introduce the answer back, which will connect up in two ways: first, it was received by the requesting official of the Department, and (2), that the Secretary of the National Electrical Code Committee received a copy of this in the normal course of business, which is what is always done whenever a report of this goes out.

I will then also like to put Mr. Stetka on the stand and, through his position as Secretary of the entire Committee, go into the reasons for this section being in there, and the intent; and I will show that the intent of that section is clearly related to the situation here.

78 And on those grounds I ask to be allowed to introduce, first, the requesting letter --

And I left out two other things: the conversation Mr. Vogel had with Mr. Geiges over the telephone, and, (2), the conversation that Mr. Stetka had with Mr. Geiges at Philadelphia concerning this and concerning the letters.

THE CHAIRMAN: Well, I understand that you have the Secretary here.

MR. ROBBINS: Yes, sir.

THE CHAIRMAN: Then he is subject to cross-examination, is he not?

MR. ROBBINS: The Secretary is, yes. But Mr. Geiges, the author of the letter is not.

THE CHAIRMAN: So he is not subject to cross-examination.

MR. ROBBINS: True.

THE CHAIRMAN: Why do we need the letter?

MR. ROBBINS: Because it is felt that he is Chairman of the Panel that wrote this, and while his letter is certainly not dispositive of the issue, however I believe it should be introduced and the Committee should then give to the views of the Chairman of the Panel who drafted this such weight as they deem necessary and proper under the circumstances.

79 THE CHAIRMAN: I take it if there is no objection to the letter, the objection is to the answer.

When you are discussing the views of a person not present and not subject to cross-examination, and you are dealing with the hazardous situation you talk about, under those conditions, Mr. Robbins, you will be leaving the Appellant here in a helpless position.

MR. ROBBINS: I realize that, sir, and I also know for a fact, as a matter of law, and I am sure the Chairman knows as well, that the history of the administrative procedure as to the types of evidence that are allowed is far distant from the rigorous legalistic approach of the courts; and that, specifically, hearsay evidence is admissible in administrative hearings. The only thing, of course, it's admitted that the findings of the administrative board can't be bound, and can't be based upon the hearsay evidence; it must be further corroborated.

Now here's something we here in the District feel is a regulation that was passed and it is trying to be enforced for reasons of the public safety. We feel very strongly about this. And we certainly feel that the views of the Committee that drafted this very section, which is in the National Code, and which has been incorporated into our own Code, are certainly relevant.

80 THE CHAIRMAN: I think the testimony has been that the two codes are identical.

MR. ROBBINS: Yes.

THE CHAIRMAN: Does this say the District came from the National?

MR. ROBBINS: That is correct.

THE CHAIRMAN: You mean the D.C.?

MR. ROBBINS: Yes, sir.

THE CHAIRMAN: We are not bound by the same rigid rules of court --

Before I go further, since I was asked by someone, I was a member of the bar, and I failed to so introduce myself.

MR. FRIEDMAN: Everybody knows that.

THE CHAIRMAN: Well, they didn't, so I say come October the 3rd I will have been a member of the Bar of the District in private practice for 39 years.

Certainly we can apply these rules more liberally than the courts. Certainly we can hear hearsay; but in the instant situation it seems to me you are going far afield to the prejudice of the interests of the Appellant.

Well, I will withhold a ruling on that. Suppose we proceed with the next witness.

* * * * *

81

LEON B. DAVIS

was called as a witness and, having been previously duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. ROBBINS:

* * * * *

Q. Where are you employed? A. Chesapeake and Potomac Telephone Company.

Q. In what capacity are you employed? A. Staff engineer, transmission and outside plant.

Q. How long have you been with the telephone company, sir?
A. Twenty-six years.

Q. Can you please give us a brief rundown on your experience and what type of work you have done with the telephone company?
A. Yes. I was employed by the Plant Department for approximately five years, at which time I went to the Engineering Department having responsibility in equipment engineering. In 1949 I took the job of General Engineer in charge of Transmission and Protection and Television.

* * * * *

THE WITNESS: In 1957 I was transferred to the AT&T company headquarters in New York, where I had the responsibility for television.

In March of 1962 I was transferred back to the Chesapeake and Potomac Telephone Company, where I hold my present position.

BY MR. ROBBINS:

Q. * * * Now, in your capacity, in your present capacity, and in your experience with the telephone company, are you familiar with the practices and procedures of the Chesapeake and Potomac Telephone Company with regard to installing telephone lines when a new building is going up? A. Yes.

Q. Will you please explain those, sir? A. Our Building and Architect Service has contact with the owner of the building when it is in its planning stage. At this time they make recommendations which are minimum recommendations for conduits within the building for telephone service.

83 Q. * * * Now will you put your telephone lines into a conduit with another system? A. No, sir.

MR. FRIEDMAN: I object. I don't think this pertains to this issue.

MR. ROBBINS: On what grounds? I will connect it up.

MR. FRIEDMAN: On the ground it's not material to this issue.

MR. ROBBINS: It most certainly is.

THE CHAIRMAN: Let's give you a chance to hook it up.

MR. ROBBINS: All right.

BY MR. ROBBINS:

Q. Why will you not put them into the same conduit with other systems? A. We think it's a hazard.

Q. Can you elaborate on that, sir? A. Yes. We think that the two systems in the same conduit are a hazard to each other mechanically and electrically. The second system installed in a conduit system we feel is quite liable to cause mechanical damage to the first system, particularly if the conduit system has been designed as a minimum system for quantities.

84

Q. In what way would this damage occur, sir? A. Mechanical

damage, as the other wires are pulled through the conduits, and particularly at turns and offsets.

* * * * *

Q. I direct your attention, sir, to Appellant's Exhibit No. 2, which has been testified to as the wire that was put into the conduit with the existing telephone wire. You have seen this, sir? A. Yes. I haven't

85 seen it before today, this particular piece of wire.

Q. Very well.

Would you put your telephone wire into the same conduit with this?

A. No, sir.

MR. FRIEDMAN: I object again.

I wish to strike it as not material what he might or might not do.

THE CHAIRMAN: I overrule the objection.

BY MR. ROBBINS:

Q. Now, do you feel that this wire -- What would be the reasons for your not putting the telephone wire into the conduit with this very same wire here? A. We don't know what this wire carries. For the telephone system in the conduit we wouldn't have any idea what was on this wire. Therefore we wouldn't use it.

Q. Let me ask you this: What voltage do your telephone wires carry? A. The talking and signaling voltage is 48 volts, D.C., ringing is up to 105, D.C.

MR. ROBBINS: At this time, while this witness is still on the stand, I would like to direct the attention of the Committee to the stipulation that was entered into between counsel and myself whereby his ex-

86 pert witness stated that the amount of electricity carried in both systems -- referring to the television antenna lead-in and to the telephone -- as being in microvolts, I would like the Board to note neither 48 nor 105 fall within the purview of microvolts.

THE CHAIRMAN: It is understood.

* * * * *

CROSS EXAMINATION

BY MR. FRIEDMAN:

Q. Mr. Davis, what is the ampereage of the telephone line? A. It varies, sir, from about 10 milliamperes to up to possibly a hundred.

Q. I am talking about telephone lines installed in this particular building. A. That's correct.

Q. What is the ampereage of those lines? A. It will vary between those lengths, sir.

Q. Under what circumstances? A. Depending upon the length of the circuits. It will depend upon the electrical resistance of the cable back to the central office, the resistance of the central office equipment and the resistance of the telephone instrument at that particular time.

87 Q. And you say that ampereage varies from what to what? A. From 10 milliamperes, or ten-thousandths of an ampere, to about a hundred milliamperes.

Q. A hundred milliamperes is what? A. That's 100-thousandths of an ampere, or a tenth of an ampere.

* * * * *

Q. Well, what is the relationship between voltage and ampereage? A. There is a direct relationship between voltage and ampereage which says that the ampereage, or the current, is directly proportional to the voltage divided by the system impedance.

Q. * * * Isn't it true -- and I am only giving it to you from a layman's point of view, and you are the expert -- that the voltage is quite meaningless unless there is substantial ampereage as well? A. The voltage is the parameter which would constitute a hazard to personnel.

88 Q. But without any amperes would it constitute a hazard? A. Yes.

Q. How? A. Well, if you have a potential and the man touches the metallic object then the circuit is completed and it's grounded.

Q. Your basis is on certain suppositions. A. Well, all these things have to occur.

Q. Now, you stated before that you thought this was a hazard

mechanically and electrically to include both lines in the same metal conduit. A. That's right.

Q. And you say "mechanically" because damage might occur on one or the other or both lines, telephone or TV antenna lines, in pulling them through, if they aren't properly done, or the workmen exposes the wires, or something of that kind; is that what you mean? A. That is correct.

Q. And if it were properly pulled through so that there is no break in either line, there is no danger, is there? A. Yes, there is a danger.

Q. What is the danger of it even when the job is properly done?

89 What is the danger? A. You can't tell, when a wire is buried in a conduit, out of sight, whether you have damaged this wire or not. You might take all possible precautions and still cause damage to the wire.

Q. I am assuming, and I ask you to assume, the wire was pulled through properly and it wasn't damaged, neither was the telephone line damaged. What danger is there? A. Well, if what you say is true, there would be no electrical -- no mechanical damage to this wire.

Q. And no electrical damage? A. No, I wouldn't say that.

Q. Is there any electrical danger, assuming both systems were pulled through properly and without damage, and installed properly? A. There is.

Q. What danger? A. There is the possibility of interference, inductive interference of one system to the other.

Q. And what is inductive interference, sir? A. Inductive interference is a condition which results from two systems in proximity. You have an interferring system and an interfered-with system.

90 Q. You will have to explain it to me in layman's language, Mr. Davis, I am afraid to say. I don't understand what you mean.

A. I see. Around any electrical conductor there is a field -- two fields in fact: a magnetic field and an electrical field.

Q. Yes. A. If a second electrical system is within the influence of this field, --

Q. Yes. A. -- there will be a voltage induced on the second system.

Q. And what happens? A. It may show up, as in some cases -- not necessarily this one, but in some cases, as a potential on the second system, which may be dangerous.

Q. How will it be dangerous? A. If the potential is high enough and a man touches it it will be dangerous.

Q. How is there any induced potential possible in this system about which we speak, and no other, when you have this TV antenna lead-in line of this caliber and this type antenna equipment in the same metal conduit as your telephone line? A. I gave you an answer to the general --

91 Q. Is there any danger in this installation? A. There is a danger from -- Well, perhaps this isn't a danger, but it will be an interference to the telephone service.

Q. You mean harmonic interference? A. You may call it that.

Q. Sound interference? A. It shows up as sound in it.

Q. You don't mean there is a danger to life, limb, person or property; you mean an interference of sound? A. In this particular case. There would be little likelihood of a dangerous condition from induction in this particular case.

Q. There would be absolutely no danger of induction in this case, Mr. Davis, I suggest, because, as you and I would agree, the potential energy output --

* * * * *

(continuing) -- the potential energy of this TV antenna line is negligible measured in terms of microvolts; isn't that right.

THE WITNESS: On the antenna line under normal operating conditions the signal is measured in microvolts.

* * * * *

92 Q. On the danger which you say might exist, apart from mechanical-- And there is no evidence here there is any mechanical danger here, is there? A. We haven't seen any evidence; but in this case, no.

Q. Aside from the mechanical danger, which would mean one or another wire might be broken, you say the danger consists in its possible harmonic interference between these two lines, is that correct? A. That is correct.

Q. But there is no danger to life, limb, person or property? A. Not when the TV system is operating in its normal function; when it is functioning normally.

Q. Have you inspected this particular TV system on this building, or buildings? A. I didn't.

Q. You are unable to tell us how and in what manner it was installed? A. I haven't seen it.

Q. And you don't know what wire was used? A. I don't.

Q. I show you Plaintiff's Exhibit No. 2. Do you recognize the kind of wire that is? A. It appears to be RG-59 coaxial cable.

93 Q. Which means what, in terms we can understand? A. It means it's the usual lead-in conductor used in television systems.

Q. What is the ampereage of this particular wire? A. I would say it's approximately 72 ohms.

Q. And can you translate that so we can understand it? A. That would be difficult to do in layman's language.

Q. What is the breakdown of this line? A. Breakdown between which parts of it, sir?

Q. Between the ground and the inner conductor line, the wire?
A. Between the ground and the inner conductor? I would say that may be several thousand volts.

THE CHAIRMAN: What do you mean by that?

THE WITNESS: That means what potential would it take to cause the insulation of this polyethylene cover of the center of this conductor to be punctured electrically.

THE CHAIRMAN: Or disintegrate?

THE WITNESS: Yes.

THE CHAIRMAN: And you say several thousand?

THE WITNESS: Between this wire and this outer shield.

BY MR. FRIEDMAN:

Q. That is a rather high protective incidence, isn't it? A. That's rather high, yes.

94 Q. Would you say that this type of wire is considered one of the best for its purposes in the market today? A. It's one of the best wires, yes.

Q. Now take the other one, Appellant's Exhibit No. 1. What kind of wire is that? Can you give us a descriptive term? A. It looks like it might be known to the trade as RG-11.

Q. That's correct.

What is the breakdown voltage of that wire? A. Oh, that would be several thousand volts between the inner conductor and the outer shield.

Q. Better than 5,000 volts? A. Very likely.

Q. Yes. And that's pretty high incidence of protection? A. It's a high incidence of protection between the inner conductor and the shield.

Q. Would you consider that -- Appellant's No. 1 -- as one of the best types of wire used for that purpose in the industry? A. I would say it's one of the good types.

95 Q. What is the outer metal grade do? What is its function? A. It serves as a radio frequency shield to prevent radiation from the inner conductor to the outside.

However, I would like to say that the television signal which you described as being in microvolts -- with which I agree -- that's the purpose of that shield, to keep this from radiating and becoming an illegally radiated signal or --

THE CHAIRMAN: So there is no difference between you and the appellant exhibit?

THE WITNESS: I would say no. It further serves as the return conductor for the RS signal.

BY MR. FRIEDMAN:

Q. And to the ground as well? A. Yes. Part of the TV signal is carried on this shield.

Q. Mr. Davis, have you ever heard of telephone lines being in the same enclosure as coaxial cable? A. I've heard of it.

Q. In fact the telephone company does it themselves, don't they?
A. That is true.

MR. FRIEDMAN: That is all.

96

REDIRECT EXAMINATION

BY MR. ROBBINS:

Q. In these instances where the telephone company has it running in the same conduit, is there an outside antenna? A. No, sir.

Q. Is there a lightning hazard the way this has been described as being hooked up with an outside antenna? A. No, sir.

Q. A lightning hazard --

Pardon me, you say you have heard of it without the antenna?

A. That's right. The telephone company does this.

Q. Does the telephone company do it with an outside antenna? A. No, sir.

Q. Why not? A. We aren't in this business.

Q. Is that the only reason? A. That's the only reason that we can state right now; yes.

Q. Based upon your own knowledge, sir, in this field, with an outside antenna is there a lightning hazard? A. I would say there is.

* * * * *

97

RECROSS EXAMINATION

BY MR. FRIEDMAN:

Q. Now, Mr. Davis, when you have a coaxial cable in the same enclosure as the telephone line, that is, lines installed and equipped by the telephone company which contain in the same enclosure the coaxial cable and the telephone line, where, in those cases where it's not connected to an outside aerial, where is it connected to? I am talking in terms of the coaxial cable. A. Oh, it may be connected to the output of a TV camera.

Q. Which is what, potentially? A. The output of the TV camera would be measured in microvolts.

Q. All right. What else? A. It may be connected to the output of a TV distribution amplifier.

Q. What would that output be? A. Microvolts.

Q. What else? Where else would it be connected? A. Well, they are the only two cases I can think of, sir.

Q. How about transformers? A. Well, the transformer, whose output would be in microvolts, yes.

98 Q. How about transmitters? A. What kind?

Q. Mobile transmitters. A. We don't run these in conduits with telephone cables when they are connected to mobile transmitters.

Q. Your telephone company does it? A. No, sir.

Q. But do you know whether television people do? A. I can't answer for them.

Q. And, in fact, the telephone company, is it not true, installs both in the same metal enclosure its telephone lines and inter-communicating systems? Is that correct? A. We install these -- We install telephone wires in the same conduits with inter-communicating systems that the telephone company installs.

Q. Oh. And these inter-communicating systems are connected to the current, the electrical current; right? A. They are.

Q. And that electrical current is measured in what terms of voltage? A. I'm not familiar to that degree with the systems the telephone company installs, sir.

Q. Can you give us your best estimate based upon your expert experience and knowledge? A. I have had no experience with these systems.

99 Q. But the fact is that the telephone company itself installs in the same metal conduits telephone lines and inter-communicating system lines, is that correct? A. Those that are installed by the telephone company; that is correct.

Q. Now you said before that there is a danger from lightning. Will you tell us how that danger arises and under what circumstances? A. A

television antenna is an excellent lightning rod on the top of a building. Lightning striking the television antenna would be conducted down the lead-in.

Q. And what purpose does the bonding and grounding serve?

A. The grounding is to avoid dangerous potentials building up between whatever object the lightning strikes and the surrounding objects.

Q. Are you familiar with the fact that all of the metal conduits in this building and all of the lead-in antenna wires are grounded and bonded?

A. I am not familiar with that building at all, sir.

Q. So will you tell me, then, if lightning struck the antenna on the roof of this building what would happen to this system? -- if you know?

100 A. In this system, I can't say.

* * * * *

EXAMINATION BY THE BOARD

BY MR. HALLER:

Q. Mr. Davis, what is the diameter of the telephone cable that is installed in a building similar to this one? A. The diameter of the usual telephone wire installed in apartment buildings is approximately 3/16ths of an inch.

Q. The testimony was that the lead-in antenna, Exhibit 2, was pulled into this telephone raceway after the telephone line was installed, and further testimony was that the interior dimensions of this raceway was a half an inch.

MR. FRIEDMAN: Some parts; other parts were three-quarters.

MR. HALLER: Ranged from one-half to three-quarters of an inch.

MR. FRIEDMAN: Right.

BY MR. HALLER:

Q. Would you say that after your 3/16ths inch cable was in this raceway and the 1/4th inch TV lead-in, Exhibit 2, was pulled into this raceway, that there being such a -- the fact that both of these cables occupy almost the entire one-half inch diameter of the raceway, that there
101 might be some danger of abrasion in pulling around elbows and such?

A. Yes. That's where you get the abrasion in most likelihood. But regardless of the size of the conduit, as it turns elbows there would be a chance of abrasion.

* * * * *

102

FURTHER RECROSS EXAMINATION

BY MR. FRIEDMAN:

Q. Mr. Davis, it's a fact, is it not, telephone lines need not be enclosed in metal buildings; isn't that right? It can run along in any other manner you choose? A. In any manner.

Q. Do you know if it's a fact TV antenna lines can be run in the same manner, not enclosed in metal conduits? A. I can't answer that factually, sir.

Q. * * * Supposing lightning were to strike a telephone pole or transformer on a pole which also serviced a house a couple of feet away, or a couple of hundred feet away: what would happen? A. There is a protector provided at the building entrance. The purpose of this protector is to protect the interior wiring in the instrument and the people and the property against just this sort of a thing.

103 What happens is that the lightning or other disturbance breaks the protector down, as we call it, and firmly grounds the line at that point.

Q. You ground it in much the same fashion, or theoretically at least, that these TV antenna lines would ground and the metal conduits are grounded; isn't that right? A. Well, this protector grounds it either instantly if it's a low energy discharge; or, if it's a high energy discharge it grounds it permanently and it stays that way until the repairman comes out and replaces certain parts.

Q. So you claim that insofar as the telephone installation is concerned, if lightning struck a telephone line and it traveled through that line to the house which it serviced, there would be no danger? A. That is correct.

Q. You have protected the occupants of that house to the best of your

ability, scientifically and actually? A. To the best of our ability.

Q. And would you tell me what would happen if lightning struck an antenna on the outside of a building, a TV antenna? A. You asked me about this particular case, sir, and I don't know about this particular case.

Q. Let's assume the situation of a building having several apart-
104 ments, with a master antenna system not enclosed in a metal conduit: what would happen if lightning struck that antenna? A. If lightning struck that antenna, in all probability a potential would be built up on the antenna, and if there were metallic objects in turn grounded close enough to this antenna, it would in all probability arc to it. In other words, --

Q. So if this television system were grounded, that's where the lightning would travel? A. It would seek ground.

Q. Seek ground? A. Yes.

Q. And if the metal conduits were also grounded it would also seek ground? -- that is, the lightning? A. It would seek the nearest ground, whatever that happens to be.

Q. Now assuming this TV antenna system were not enclosed in a metal conduit: what would be the danger there if lightning struck? A. Danger to what?

Q. To anybody or any property, if it were grounded? A. If it were properly grounded?

Q. Yes. A. In my opinion there would be a minimum risk.

105 Q. There would be no danger.

Would there be any more danger to that system than the telephone system? A. You are talking about lightning coming in over an antenna --

Q. Yes. A. -- in one case, and talking about lightning striking a telephone system outside the building on the far side of our protection in the other case.

Q. Let's assume the lightning struck the building, or telephone line as it entered the building: would there be any greater danger there than if lightning struck a pole? It would seek its ground. A. Our protectors are generally inside the building.

Are you talking about lightning striking a wiring after it went through the protector, or outside?

Q. No, on the outside of the building. A. As long as it's on the outside we would have no difficulty.

Q. No difficulty.

And so if the TV antenna master system were installed and properly grounded and bonded there would be no danger there either; would there?

A. If it were properly bonded and grounded.

Q. That's what I'm talking about, properly installed, bonded and
106 grounded. There would be no danger there, would there? A. Perhaps you should direct your question to somebody who is an expert on lightning with respect to systems other than the telephone.

* * * * *

THE WITNESS: I can testify as to the effect of lightning as it strikes the telephone system.

BY MR. FRIEDMAN:

Q. You have testified previously that there is a danger in a master antenna system when lightning strikes the antenna on the roof. I am asking you now whether there actually is any danger, and if there is none if a television antenna system were properly bonded and grounded. A. If it is properly grounded there is little danger.

Q. There is no danger. Are you reluctant to say there is no danger?

A. I am reluctant. You can't protect 100 percent against anything.

Q. Is the telephone company protecting 100 percent against anything?

107 A. We don't protect against all contingencies; it's not economical to do this.

Q. What I'm getting at, Mr. Davis: insofar as engineers can devise a perfect system, they have done it with regard to telephone lines insofar as danger from lightning is concerned, isn't that so? A. That's right.

Q. Insofar as it's humanly, scientifically possible to guard against lightning with a master antenna system they have done the same thing, with the requirement of bonding and grounding? A. You better ask the master antenna people.

Q. You say you are incompetent to testify about that? A. About an antenna?

Q. Yes. A. I would say I shouldn't testify about this.

* * * * *

108

FRANK STETKA

was called as a witness and, having been previously duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. ROBBINS:

* * * * *

Q. What is your occupation, Mr. Stetka? A. Electrical field service engineer for the National Fire Protection Association, the publishers of the National Electrical Code; and I am also Secretary of the National Electrical Code Committee.

Q. As Secretary to the National Electrical Code Committee, are you the custodian of their records and files? A. Yes, jointly with the Chairman.

Q. In your capacity as Secretary to the National Electrical Code Committee, did you receive a copy of a letter from Mr. Geiges directed to the Department of Licenses and Inspections of the District of Columbia recently? A. Yes, I have a copy of that letter also.

Q. All right, sir.

Will you please tell us who Mr. Geiges is? A. Mr. Geiges is the Vice President of the Underwriters Laboratories for the Santa Clara
109 station, which is the Western Station, west of Chicago. He is also the Chairman of Panel 15, which has jurisdiction over Article 810 of the National Electrical Code.

Q. And, sir, do you have that copy with you? A. Yes, sir.

(Document handed to counsel.)

MR. ROBBINS: At this time, Mr. Chairman, I would like to introduce this copy. I have also the original, and I am --

THE CHAIRMAN: Do you raise a question as to the copy, Mr. Friedman?

MR. FRIEDMAN: I don't raise any question as to whether it's a true copy or whether the man received it. I object to the substance, is what I object to.

THE CHAIRMAN: All right.

What is the purpose in offering it, Mr. Robbins?

MR. ROBBINS: This letter, as I stated before, Mr. Chairman, in my proffer, was in answer to a request made by our Department of Licenses and Inspections. The letter that Mr. Vogel wrote went along with the -- they call it here "schematic," which is this draft introduced previously. And the letter went and asked --

MR. FRIEDMAN: Now I object to this, to the reference to it.

* * * * *

110 THE CHAIRMAN: Mr. Stetka, you stated Mr. Vogel here wrote a letter --

* * * * *

MR. ROBBINS: Correct, sir.

THE CHAIRMAN: Now Mr. Stetka is saying that letter was received?

MR. ROBBINS: Yes. But Mr. Stetka didn't receive the letter Mr. Vogel sent, to my knowledge.

THE WITNESS: No.

MR. ROBBINS: Mr. Stetka received a copy of a letter that was sent in return to Mr. Vogel answering his letter.

THE CHAIRMAN: Let's see if I get this: this thing you are offering here, this letter, is that the letter written by Mr. Vogel?

MR. ROBBINS: No, sir; that is the letter I first attempted to introduce. The letter I am attempting to introduce now is a letter from Mr. Geiges.

111 THE CHAIRMAN: Of the District?

MR. ROBBINS: No, sir; of the National Electrical Code Committee, Chairman of Panel No. 15.

THE CHAIRMAN: And this is the response?

MR. ROBBINS: Yes, sir.

THE CHAIRMAN: And the witness, Mr. Stetka, knows of this response. Does he agree with the response?

Do you agree?

THE WITNESS: Yes, sir.

THE CHAIRMAN: And the response reflected in this, is this it?

MR. ROBBINS: Yes.

THE CHAIRMAN: You concur with it absolutely?

THE WITNESS: Yes.

THE CHAIRMAN: Let me look at it.

(Document handed the Chairman.)

MR. FRIEDMAN: I would object to it, Mr. Chairman for additional reasons: that this pertains to the National Electrical Code, this pertains to the National Electrical Code and we are here concerned with not why or how the National Electrical Code came to adopt a provision; we are here concerned with how and why, and the basis for Section 8123.2 being adopted by the Commissioners of the District of Columbia. They are the ones who promulgated this section. And to go as far afield to say because
112 somebody else had some reasons in mind which were good enough for us, therefore we are going to adopt it, that's a specious reason and argument, I say, and has nothing to do with the issues involved here.

The Court of Appeals said in clear and explicit language that the District must offer direct competent testimony regarding the danger of hazards, and this is far removed from that field.

THE CHAIRMAN: Well, nevertheless, sir, Mr. Friedman, I still think now the foundation has been laid and we can take the letter from Mr. Vogel, or whoever wrote it, and this response. Even though you didn't write it you say you concur with it, and you are one of the officials.

THE WITNESS: Yes.

THE CHAIRMAN: We can accept it for what it's worth.

I overrule the objection.

Do you have a letter there of transmission, Mr. Robbins, that this is the answer.

MR. ROBBINS: Yes, I do.

THE CHAIRMAN: You are offering this?

MR. FRIEDMAN: I most strenuously object. This is hearsay of the rankest sort, and was not contemplated by the Court of Appeals.

113 THE CHAIRMAN: We will accept it for what it's worth.

* * * * *

(Whereupon, the documents referred to were marked Government Exhibits No. 2 and 3 for identification and were received in evidence.)

BY MR. ROBBINS:

Q. Mr. Stetka, how long have you been in the electrical field, sir?

A. Well, I guess I can go back to about 1913.

Q. In what capacity, sir? A. As a helper; and then after the first World War I attended a 4-year electrical engineering course for disabled veterans in Baltimore, under the Disabled Veterans Act at that time.

* * * * *

Q. You have been an electrician since then, is that correct, sir?

A. Well, I graduated at that time. And, of course, times were a little tough at that time and I became an electrician instead of an engineer. And I served as an electrician and a contractor until 1930 or thereabouts, and
114 business was bad and I went to work with the Government.

At one time I had charge of buildings under the Federal Government in the District of Columbia, and later on I transferred to the District of Columbia as an electrical inspector, in 1937. From then on I went to the Electrical Engineering Department as assistant electrical engineer in 1944 for the District of Columbia, and became the Chief Electrical Inspector in 1949.

Then I left around '55 or thereabouts, and I transferred to the General Services Administration as their Supervisory Electrical Engineer for Region III, which covers about five states.

Incidentally, most importantly, I retired four years ago to take this job with the National Fire Protection Association. So I am a retired Government employee at work.

* * * * *

Q. Now, Mr. Stetka, as an experienced electrician, and also through your jobs with the District and Federal Government, and now with the National Electrical Code Committee, you are familiar not only with the National Code but the D. C. Electrical Code, is that correct?

A. Yes.

115 Q. And I believe you stated you concurred fully in this, is that correct, sir? A. Yes. I think Mr. Geiges put this out in a very well defined manner.

Q. As an electrician, Mr. Stetka, can you give me an electrician's definition of a wiring system? A. Well, to state it simply, I'd say that it's a source and all the conductors connected thereto having the same characteristics. In other words, to put it in a very subtle form, if you have a 115-volt system into your house and you run through a small transformer for a buzzer system or a doorbell system, you have changed systems. This is a simple way of putting it.

Q. Then from my understanding, any of these systems that have any of these in them, they are wiring systems, wire and some voltage? A. Yes.

Q. It entails wiring and some power, is that correct, sir? A. Yes.

Q. Is this power measured in volts? A. Well, I would say when the voltage changes you have changed systems.

* * * * *

116

CROSS EXAMINATION

BY MR. FRIEDMAN:

Q. Mr. Stetka, have you any training or experience in the installation and manufacture or supply of TV electronic equipment? A. None whatsoever.

Q. And do you have any experience in dealing with TV antenna systems? A. Only insofar as Chief Electrical Inspector.

Q. Well, as Chief Electrical Inspector were you ever called to inspect any master TV antenna systems? A. No, sir, I have not been.

Q. Have you inspected any? A. No, sir.

Q. Do you know how they are installed or what equipment is used in the installation of TV antenna systems? A. Yes.

Q. What? A. I installed my own.

Q. Oh, you installed your own? You mean in your home? A. Yes.

Q. Are you familiar with any of the more widely known brands of television antenna equipment? A. A little.

117 Q. Can you name me one or two of the largest manufacturers of TV antenna equipment? A. No, I wouldn't go into that.

Q. Name me one. A. I wasn't concerned with them, you see.

Q. I see.

Are you familiar with the system that we have here under discussion?

A. Just from what I have heard.

Q. You haven't seen it or inspected it? A. No, sir.

Q. Are you familiar with the fact that the telephone company has in the same installation and in the same enclosure coaxial TV lines and telephone lines? A. Yes.

Q. Are you familiar with the fact that the telephone company has in its own metal conduits telephone lines and inter-communicating systems?

A. I have heard that a little while ago; yes.

Q. That was the first knowledge you had of that? A. Yes.

Q. So you have had -- Outside of your own installation of a TV antenna in your own home, you have had no experience with the systems?

A. That's right.

118 Q. And neither from the point of view of inspection, installation, approving or disapproving them? A. Only insofar as I always make sure that the men understand that they were not to be installed in raceways with others.

Q. That wasn't my question, Mr. Stetka, and you know that. A. Yes.

Q. I asked you simply and clearly and concisely whether you had any experience whatsoever in inspecting, installing or supervision, or approving or disapproving -- A. Only as stated. I installed my own television set, that's all.

Q. Is that the extent of your experience? A. Yes.

MR. FRIEDMAN: That's all.

EXAMINATION BY THE BOARD

BY THE CHAIRMAN:

Q. What is this national organization, Mr. Stetka? A. The National Fire Protection Association prints the National Electrical Code.

Q. I understand that; but what constitutes the association? A. Oh, it's a committee of 17 code-making panels selected from all branches of the electrical industry, and each panel has jurisdiction over several
119 articles of the National Electrical Code. This, in turn, is more or less supervised by what we call a correlating committee, and every three years it's their job to make sure that we get a new code based upon the revisions and amendments proposed by anyone in the country. Any person in the country has the right to amend or propose an amendment to the National Electrical Code. And the top people are selected -- I suppose there are 150 to 200 -- by the electrical people in the country.

* * * * *

MR. HALLER: I just have one question.

BY MR. HALLER:

Q. Mr. Stetka, from your experience as an electrical engineer, would you say that in a raceway carrying telephone conduits and in which raceway TV lead-in wires were introduced in close proximity, almost side by side, or almost touching each other, would you say that this TV antenna installation could possibly in any manner set up an induction interference to the reception of telephoning?

MR. FRIEDMAN: I would object to the question, Mr. Haller, because I say Mr. Stetka has already testified he has no experience whatsoever with TV antenna systems.

120 THE CHAIRMAN: I will have to agree with you.

THE WITNESS: And I do too.

THE CHAIRMAN: That makes it unanimous.

* * * * *

RICHARD L. LLOYD

was called as a witness and, having been previously duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. ROBBINS:

* * * * *

Q. What is your employment, Mr. Lloyd? A. I am Acting Chief

of the Section of Codes and Safety Standards in the Building Research Division of the National Bureau of Standards. I am actually titled as an Electrical Safety Engineer.

Q. Would you please tell the Board what your background in this
121 field is, sir? A. Well, I graduated with a bachelor in science in electrical engineering, and was later given a diploma as a professional electrical engineer. I have worked for the Potomac Electric Power Company in their Relay and Protection Section. I worked for Underwriters Laboratories as a safety engineer.

For the past twenty years I have worked on codes and safety standards for the National Bureau of Standards.

Q. Are you connected with any committees outside of the Bureau of Standards? A. Well, I represent the National Bureau of Standards on about 65 committees.

Q. Is one of these committees having to do with lightning? A. Yes.

Q. Which committee is that, sir? A. This is the committee that prepares the code for protection against lightning, and I serve as one of the representatives for the Bureau, and also as Secretary of that committee.

Q. You are Secretary of that committee? A. Yes.

MR. ROBBINS: May I have Government's Exhibit No. 3, please?

122 (Document handed to counsel.)

BY MR. ROBBINS:

Q. Have you seen --

MR. FRIEDMAN: I object to the witness being shown any letters.

MR. ROBBINS: This is in evidence.

MR. FRIEDMAN: I know, but I object to this witness testifying about any letters somebody else wrote.

THE CHAIRMAN: You know the substance of the letter, don't you?

MR. ROBBINS: Yes, and so I might add --

I will ask the witness a direct question, then.

BY MR. ROBBINS:

Q. Mr. Lloyd, are you familiar with the contents of a letter Mr.

Geiges sent to the District of Columbia Government? A. Yes, I am.

Q. And the letter stating as to the possible hazards --

MR. FRIEDMAN: I object to counsel paraphrasing what the letter states, or even asking this witness any questions concerning that letter.

This witness, as I understand, is here on his own feet. He --

123 MR. ROBBINS: I am entitled to ask whether or not he agrees with the statement of somebody else, Mr. Friedman.

THE CHAIRMAN: Why don't you?

BY MR. ROBBINS:

Q. You are familiar with the contents of that letter, are you, sir?

A. Yes.

Q. Do you agree with what Mr. Geiges wrote?

MR. FRIEDMAN: I object to this question.

THE CHAIRMAN: Overruled. We will take it for what it is worth, Mr. Friedman.

BY MR. ROBBINS:

Q. Go ahead. You are permitted to answer that. A. Yes, I do; I agree with the statement made by Mr. Geiges.

Q. Now, based upon your experience as an electrical engineer, and especially with regard to your work in the lightning field, I am going to ask you a hypothetical question:

You have an apartment house comprising some 37 units, in which you have a metal raceway, extending through all the units, in which are telephone lines. At a later date a master TV antenna system is installed and the lead-in wires from this system pass through the same conduits.

124 Do you feel there is any hazard connected with this installation?

MR. FRIEDMAN: I object to that.

THE CHAIRMAN: Well, hold it just a minute.

I don't think your hypothesis is complete.

MR. ROBBINS: I will add to that, Mr. Chairman.

BY MR. ROBBINS:

Q. And were lightning then to strike the television antenna, would the inclusion of the television antenna lead-in wires into the same race-

way as the telephone system add to the hazard?

THE CHAIRMAN: It's still incomplete.

MR. ROBBINS: Give me a moment, please.

THE CHAIRMAN: Surely.

BY MR. ROBBINS:

Q. And then if I were to tell you that the telephone system was a normal -- approximately 3/16ths of an inch in diameter, as it used, and the television lead-in system was, as here, Appellant's Exhibit No. 2: now can you answer my question?

MR. FRIEDMAN: I still object.

THE CHAIRMAN: It's still not complete. You are approaching it.

125 MR. ROBBINS: I am really at a loss, Mr. Chairman. The only thing I can think of --

THE CHAIRMAN: You are speaking of a conduit. If you want me to ask you a question maybe I can give you the key.

Can those two wires go through a conduit that wide? (Indicating).

MR. ROBBINS: I was dealing in terms of what I gathered was a minimal or normal conduit in saying 1/2 to 3/4-inch in diameter.

THE CHAIRMAN: On the interior.

BY MR. ROBBINS:

Q. Now would that add to the hazards, sir?

MR. FRIEDMAN: I still object.

THE CHAIRMAN: The objection is overruled.

We will take it for what it is worth.

THE WITNESS: I might explain that in trying to answer this question there are a lot of different factors involved here that would make the answer conditional.

Perhaps it would be better to state some of the basic assumptions so that you can get a more intelligent answer.

If you assume that a television antenna is on the roof of a reasonably tall building, then this becomes a prime target for a lightning charge. Now a lightening charge may be many millions of volts, so it's impossible to contain it with a little bit of insulation which may be rated 10, 15, or

126 20 thousand volts. So if the insulation isn't adequate to prevent its transfer to other metallic conductors, whether or not this is in conduit. If they are in the same conduit then you have no assurance that you wouldn't get this transfer. If they are in separate conduits, then the transfer is more likely to be to the conduit which usually has a greater surface area and capacity to carry high currents which you will find in lightning discharges, and therefore it's a more adequate conductor to carry discharges to ground, which is where the lightning eventually tries to wind up.

Now I don't know whether this conveys the basic principle involved or not, but if you have any detailed questions I will be glad to answer them.

BY MR. ROBBINS:

Q. Now let me ask you this: you stated lightning carries a potential of several million volts; is that correct, sir? A. It can.

Q. Now, if the insulation surrounding the lead-in antenna were good for only 5,000 volts, what would happen? A. You may get an interchange of the flow of current from one conductor to another if it wasn't insulated for the voltage involved.

127 Q. Now, there was testimony before, sir, with regard to the lightning striking at the place where the telephone wires come into the house. Now let me ask you this: with a television antenna system, where on a house is the most likely place -- based upon your knowledge of this particular field -- for lightning to strike? A. Well, lightning is most liable to strike the uppermost extremity of a structure.

Q. Now when you speak of extremity of a structure, does that include a fixed television antenna? A. It would, yes.

Q. Now let me ask you one other question: --

THE CHAIRMAN: I don't want to be too technical, but aren't you a little afield from that testimony you were referring to? You started out with lightning is going to hit telephone wires on a house, and you suddenly go from there to the roof as the most likely place it will hit.

We are dealing with two separate things, aren't we?

MR. ROBBINS: I am at a loss as to what you are driving at.

THE CHAIRMAN: One was a question, for instance, if lightning were to hit a transformer or wiring, say, of a pole, of a telephone system, and it ran toward the house; the testimony was that there would
128 be no damage because there would be protection at the entrance. Then the next proposition was this television antenna, what would happen there. The testimony was given to two separate things.

MR. ROBBINS: I believe the answer to that was there would be a transference of current.

If you wish, then I will proceed, Mr. Chairman.

THE CHAIRMAN: Go ahead.

BY MR. ROBBINS:

Q. When you spoke of this transference of current, what does that entail? A. As you probably know, a lightning discharge is a steep wave front or current. It's something that happens over a relatively short time duration, and it can involve a very high voltage and a very high current. Now this discharge may be regarded somewhat as a quantity of energy that is being conducted along a path, and while this is something that usually would be thought of as an electrical current existing continuously in a circle, in a lightning discharge this doesn't usually happen. You get a flow in one direction of energy passing in a transitory condition from one place to another.

Now this means that this energy will go down through any conducting path that it can find until it gets to the ground, where it is dissipated.

129 Q. If we had this force, as you say, which might be as much as several million volts, and it broke down the insulation on the lead-in -- And then you spoke of a transference to another system; is that correct, sir? A. Well, yes.

Q. Would it then go along that other system? A. Well, it would go along multiple paths to get to the ground; it will go by all the means by which it can eventually reach ground. This means that you can get part of the discharge flowing down through, say, a metal conduit, part

of it flowing within the conductors within that conduit, and part flowing through each of the individual wires which would transfer them to their end, to the ground.

Q. This current would be diffused? A. It would disperse.

Q. Disperse: I stand corrected.

It would then travel down any one of -- A. Down each individual path to the ground.

Q. Would it be then possible for it to come out of the telephone?

A. Yes. If it transferred to the telephone conductors it could go in both directions on those conductors, and it would eventually try to reach ground by jumping off of the insulated conductors to ground through some
130 suitable point.

Q. Now, let me leave your field of expertise of lightning and go back to just general electrical work. A. Yes.

Q. Are you familiar with the section of the D.C. Electrical Code here in question? A. Yes.

Q. Now, sir, can you tell this Board what is flexible tubing?

MR. FRIEDMAN: I object. I think the Code speaks for itself within its own definition. And calling in somebody else to explain what the term is, I think is highly improper.

MR. ROBBINS: We went into the subject of flexible tubing at great length this morning, Mr. Friedman.

MR. FRIEDMAN: Not with this witness.

THE CHAIRMAN: I overrule the objection. We will take it for what it's worth.

MR. ROBBINS: Mr. Witness, will you answer the question, please?

THE WITNESS: Well, tubing, in effect, is a raceway for a conductor to be installed in. If you have a tube which is in place on a conductor as it's manufactured, then it's considered as a cable or a cable assembly. It can only be tubing when the raceway itself is installed and the conductor
131 is later installed inside it.

* * * * *

CROSS EXAMINATION

BY MR. FRIEDMAN:

* * * * *

Q. * * * Lightning is a very touchy subject, and we are all deathly afraid of it, aren't we? A. Well, I can't answer that. I presume some of us are.

Q. Well, most of us are, because it conjures up awful possibilities.

I don't take your testimony to mean that because of the possibility of lightning striking antennas we ought to remove all antennas from roofs. You don't mean that, do you? A. That isn't what I intended to convey.

132 Q. But it's still possible for lightning to strike any antenna on the uppermost part of any roof or on the upper part of the ground? A. Right.

Q. I live at Chesapeake and Reno Road, which is considered one of the high spots in Washington. It's right near your Bureau of Standards. A. Yes.

Q. And our house sits up there on top of a hill and it's a 2-story house and has a chimney, and on top of that there is an antenna, and that overlooks everything around us.

I suppose we could get struck by lightning there? A. Well, a lot depends on your location, with respect to what your hazard would be.

Q. Well, let's take my location, with the ordinary average garden variety type of antenna affixed to the uppermost part of the chimney and projecting above it, and coming in with a plastic insulated covering on the bare wire, in through one of the windows, and attached to the TV aerial system.

Now, what would happen if lightning struck the antenna on my roof?

133 A. Well, if it was grounded it would probably travel over any suitable conductors to ground.

Q. Well, let's assume that my antenna system is grounded. That lightning, then, is going to the ground through the grounding system?

A. It will flow through the grounding system and it will also divide and flow down the lead-in.

Q. Are you telling me that we have a definite hazard there? A. I would definitely advise that you don't under any circumstances touch your television lead-in during a thunderstorm in your area.

Q. Then what you are saying is, regardless of whether the TV antenna system is enclosed in a metal conduit, or exposed, there is still that danger, and I better not turn on my TV set during electrical storms? A. There is no harm in watching TV. I wouldn't say the TV set would be injured, but it's not the practice to hold the television in your lap or to put your hand on.

On the other hand, there are other pieces of equipment you may be holding in your hand during a lightning storm. These are the ones you don't want lightning on.

Q. And this is irrespective of whether the antenna system is enclosed in a metal conduit or not? Right? A. The hazard is there, yes.

Q. What hazard is there to my telephone line in my house from lightning? A. I don't know what your arrangement is.

Q. I assume it's the usual type of telephone installation. A. If it's the usual type of telephone installation, the conductor that flows from the substation to your house is pretty well protected from being struck by lightning. The drop to your house is usually much lower than your house is, and therefore the danger is to the house rather than to the telephone line which is located down at a lower level.

Q. Suppose I were to tell you, Mr. Lloyd, my telephone line and my antenna line, where they come into the house, are right next to each other in the house, along the moulding outside, not enclosed in a metal conduit, one leading to the telephone instrument and the other to the TV set. Have I increased my hazard any? A. If they are close together you have added to your hazard.

Q. How close would you put them? A. Well, the lightning code recommends a separation of six feet in order to prevent transfer; but sometimes this is impractical. This would be the desirable value.

135 Q. So what we are talking about is desirable values for the maximum protection; and according to your standards you would say six feet, is that correct? A. It's assumed that you will get reasonable protection with a 6-foot separation.

Q. You mean even with a 6-foot separation you might not get all the protection you would like? A. Well, we just spoke of lightning having a voltage of several million volts.

Q. Right. A. This jumps terrific distances; therefore you are never completely safe by insulation only, by shielding or guarding.

Q. Let me assume for purpose of discussion the same building Mr. Robbins asked you to assume, with a number of apartment units, metal conduits running through the building, and a master antenna system with a master antenna on the roof of the building, at its highest point, and the master antenna having a direct ground to the ground.

You understand? A. Yes.

Q. That wire, as soon as it comes off -- It's directly connected, I should say, to the antenna; it's a grounding wire. Would you say that
136 that is normal and usual and in good practice? A. Yes.

Q. Now let me take the line as it comes into the building, the antenna line, -- A. Yes.

Q. -- similar to this one of these two exhibits here. A. Yes.

Q. Now this is grounded directly as well. Would you say that is good practice? A. Yes.

Q. Now enclosing this in a half-inch or three-quarter inch metal conduit by itself from the antenna to the basement, having that metal conduit grounded, is that adequate protection? A. Yes.

Q. And good practice? A. Yes, it is.

Q. Then we come to the basement, and we come to a transformer system. You are familiar with the transformer systems and installations? A. Yes.

Q. We have what is called a Jerrold, or any similar quality, to increase the sound volume or the signal volume, -- I should say the
137 amplifier. A. Yes.

Q. And to have that grounded, that is good practice, too, isn't it?

A. Yes.

Q. Now, then, from there these lines run in the same metal conduit as the telephone wire, -- A. Yes.

Q. -- to the various apartments where they go off at different junctions, at different junction boxes, the TV antenna line to its separate box and the telephone line to its separate box, all of these metal conduits being bonded and grounded.

Would you consider that to be a safe and good installation? A. You are now talking about putting a conductor that might have a lightning discharge on it along with other conductors that may not have this? This in itself isn't good practice.

Q. Which ones are you referring to, that do not have the grounding? A. Communications circuits.

Q. Which communications circuits? The telephone? A. Yes.

Q. I thought you said before, or the telephone man the telephone circuit is grounded as it comes into the building. A. Yes.

138 Q. Now that's good practice, I suppose, isn't it? A. He didn't indicate that the lines that carry the signal systems are grounded.

Q. Well, that would be an additional safety precaution which the telephone company ought to indulge in, isn't it? A. They usually put a lightning protector at that location, but that doesn't actually ground the conductors.

THE CHAIRMAN: I believe that was the correct testimony.

MR. FRIEDMAN: I wasn't sure, and I am not yet.

BY MR. FRIEDMAN:

Q. Well, the telephone system as it enters the building, you say should have a grounding device? A. I believe you mean a lightning protective device.

Q. Yes, that's right. A. Yes.

Q. Now, have you seen this installation in question? A. No.

Q. Let me ask you this, sir: Do you know what would happen,

139 Mr. Lloyd, if I exposed the television antenna wire, or line, and I exposed the telephone -- the TV antenna line I expose and also expose the telephone wire, and I touch both of those exposed parts together: what would happen? A. I am afraid I can't answer that question.

Q. You don't know? A. No.

Q. Now, I believe you testified lightning seeks ground? A. Yes.

Q. Along the path of least resistance. Is that right? A. Well, you haven't stated it quite correctly. It goes by all of the paths that are open to it, and these paths are divided according to the impedance of the various circuits concerned.

Q. I suppose you know the Empire State Building in New York?

A. Yes, I do.

Q. They have one of these TV antenna that extends way up above the height of that building. I don't know how tall it is, but it's pretty tall; it's the tallest building in the country. A. Yes.

140 Q. Lightning has struck that TV antenna many times, hasn't it?

A. Many, many times.

Q. Many times, and with no danger to anybody? A. You will have to amplify that.

There is no danger to people in the buildings that aren't exposed to other hazards. It would be unsafe to go and touch the lead-in from those transmitting antennas during a lightning storm.

Q. Well, that would be true in my house, too, wouldn't it? A. That is correct.

Q. That would be a silly thing to do.

And it would be equally silly for me to take a connected radio into the bath tub with me and immerse it into the water. A. Indeed it would.

Q. We talk about the usual normal situation, now, Mr. Lloyd. Who in the building would be exposed to any danger if lightning struck that TV antenna aerial up on the roof of that building? A. I don't feel I am qualified to answer that. I don't know the particulars.

Q. Well, then you aren't qualified to answer with regard to the installation we have here under question, are you? A. Only to the extent

141 of referring to a specific type of installation.

Q. You don't know how it's grounded and in what manner it's grounded, do you? A. No. But merely grounding it doesn't remove all the hazard.

Q. Now I ask you this question, Mr. Lloyd: assuming it was grounded according to the best practices, and it were not enclosed in a metal conduit, and the TV antenna line and the telephone line ran side-by-side within six inches of each other, or a foot of each other, is there any danger of lightning striking that antenna? Is there any when it strikes it? A. There is some.

Q. Is there any danger when they are enclosed in a metal conduit? -- any greater danger? A. Well, you mean --

Q. When that metal conduit itself is bonded and grounded? A. You mean this is a small conduit in which now they are in very close proximity?

Q. First I take it without an enclosure, in close proximity to each other. A. Well, you said six inches. This is not real close.

142 Q. Take it within two inches, one inch; next to each other. Not in the metal enclosure. A. The closer they are the greater is the danger for transfer of current from one to the other.

Q. Yes. So within two inches it would be dangerous, within three inches it would be dangerous, within four inches; it's a matter of degree. Is that what you say? A. That's correct.

Q. And to meet the maximum ideal situation you would have them not at all anywhere near each other, or even in the same building for that matter -- or even in the same room? A. Well, it depends upon the degree that you want to try to protect them.

Q. Well, to the best possible human extent. A. The Lightning Code indicates that six feet is a reasonable space to get this protection.

Q. Now let me ask you this: supposing you were to enclose in the same metal conduit a power line, an electrical line for light or heat or power, with a telephone line: would there be any danger? A. Well, I wouldn't do this, because this is a violation of the National Electrical Code.

143 Q. No, I ask you without regard to the Code, is there any danger in that installation? A. I would have to know the specific facts before I could indicate the degree of danger.

Q. Supposing you had two lines, one electrical line and one heat, electrical heat line, power heat, in the same metal conduit, neither one of them receiving 600 -- Would you say there would be any danger? A. You say exceeding 600, but you didn't say what the units were.

Q. 600 volts. A. Well, --

Q. If both lines were less than 600 volts? A. Well, if the voltages on the conductors don't exceed this rating, then danger is less. However, it's well known that insulation when it's drawn into metallic raceway systems can be damaged, and this is one of the reasons for setting up safeguards to prevent current from one system getting on another when they are pulled into a raceway system.

Q. Now the Code permits, as I understand it -- the D.C. Electrical Code -- two lines, or more than one line, having less than 600 volt capacity within the same metal conduit. Are you familiar with that section? A. Are you talking about them both being power conductors or signal?

144 Q. Both being power conductors of different voltages; of different voltages under 600. A. So that the relative hazard there as far as voltage is approximately the same, and the only real hazard there is the one of the fire hazard from breakdown of the insulation and crossing of the circuits.

Q. So there is a danger? A. You are now talking about the fire hazard.

Q. The fire hazard first? A. Well, there is always some hazard from interchanging systems. because of possible overheating of conductors.

Q. So that even though both systems, if they are in the same metal conduits and are less than 600 volts, there is a danger? A. Well, this depends on many factors. If these are properly protected from over-current then there may not be any great hazard. It may be a very minor one.

Q. Well, now, getting back to our principal case, where you have

a TV antenna line like that one there to your right (indicating), enclosed in the same metal conduit as the telephone line, and assuming that both lines are adequately bonded and grounded, both with respect to the lines per se and the metal conduits, would you say that the maximum protection
145 has been afforded from any possible danger? A. Well, it isn't possible to ground all of the conductors. You can't operate a communication system if you ground all the conductors, so you have made a false assumption to begin with.

Q. You correct me. A. If you talk about having suitable lightning protectors, overcurrent protectors, and so on, then it is as I have indicated previously: the danger is in having a high voltage electrical discharge from lightning transferring from the conductors that it would be flowing down on, the antenna system to the communication conductors that may be in the same conduit.

Q. Do you have personal experience, professional experience, with respect to TV antenna systems? A. I have been working with this field from the standpoint of codes and requirements for many years.

Q. And that's the extent of your experience in working with the Code Department? A. That's right. I have made field inspections; I have seen factory equipment; but most of my interest has been from the standpoint of the application of code requirements.

Q. Mr. Lloyd, I will ask you: have you ever heard of any lightning
146 injuring persons or damaging property on a system such as we have here under discussion, from your own personal knowledge, where the -- A. I don't know of any other systems of this type where the lead-in antennas are mixed with communications conductors; therefore I have no knowledge or experience with this type of system.

Q. You don't know whether there are a great many or few? A. That's correct.

Q. You don't know what experience has been with respect to safety? A. That's correct.

Q. Or lack of safety? A. Yes.

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147

EXAMINATION BY THE BOARD

BY THE CHAIRMAN:

Q. Isn't it possible, Mr. Lloyd, or true, that there is no such thing as an absolutely fireproof situation? For instance, we have storage houses that say they are fireproof. They aren't absolutely, are they?

A. That's correct.

Q. But they are as near as they can make them. A. Yes.

Q. In this way you are dealing with, say, a potential of millions of volts, a sudden bolt of lightning. It may be that nothing is absolutely lightning-proof; is that correct? A. That's a reasonable statement.

Q. But you make it as near as you can. One witness testified that's what happened in this case.

* * * * *

CROSS EXAMINATION (Resumed)

BY MR. FRIEDMAN:

Q. Are you familiar with the fact, Mr. Lloyd, that the telephone company runs in the same enclosure coaxial cables as the telephone lines?

A. I'm not familiar with those systems, sir.

148 Q. Would you say that offers a potential danger, too? A. I wouldn't know what voltages are involved. I'm not familiar with those systems of their's.

Q. Are you familiar with the fact the telephone company installs in the same metal conduits telephone lines and inter-communicating systems? A. I understand they do.

Q. Would you say that offers a hazard? A. Not if they are insulated for the voltages involved from the current standpoint in suitable protectors.

Q. You say they are suitably protected. What do you mean by that? A. Well, a circuit is usually hazardous from the current that flows in it. If the current is limited by a fuze or other protector, then this prevents too much current from flowing and harming or overheating the conductors.

Q. Supposing the coaxial cable in the telephone lines came out of a transmission station which might be exposed to lightning. Would there be a danger in that enclosure which has the coaxial cable and the telephone

line potentially? A. I would presume there would be, because I understand from the telephone protection engineer up in the New York area
149 that such a thing did happen, where lightning did strike the Empire State Building and actually travelled over on one of their coaxial cables to one of their other buildings. That has actually happened.

Q. Do you know what happened there? A. Well, they had an equipment burn-out.

Q. Equipment burned out? A. Yes.

Q. Now, have you seen this set-up we have here on a plywood board here, with the cables and -- A. No, I haven't.

* * * * *

150 THE CHAIRMAN: Describe it for the record.

MR. FRIEDMAN: For the record, this is mounted on a piece of plywood board. At the top is a TV antenna with a lead-in line, with the amplifier to a transformer, to metal conduits in which are enclosed both TV antenna line and telephone line --

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THE CHAIRMAN: I assume it is similar -- not identical -- to that in the building, let's call it; but it's merely to show the Court what it's all about if and when it's needed.

* * * * *

BY MR. FRIEDMAN:

Q. Are you familiar with that equipment, sir? A. No, I am not.

* * * * *

151 Q. This is the antenna portion. There is a wire connected to it which leads down to the amplifier; is that correct?

* * * * *

THE WITNESS: Yes.

BY MR. FRIEDMAN:

Q. Assuming this white wire were connected to the antenna, there is a heavy grounding wire which leads to a pipe which leads to the ground. Right? A. Yes.

* * * * *

152 Q. (continuing) Then from the amplifier there is another white heavy-duty grounding wire to the ground pipe; is that correct?

A. What is that wire connected to in the amplifier?

Q. Well, you come here and look at it yourself. It's a grounding wire connected to a grounding connection on the amplifier, leading away from it to the grounding pipe. Right? A. Is that only the enclosure of the amplifier?

Q. That's on the enclosure.

It's a true ground from the amplifier to the grounding pipe, is that right? A. Yes.

Q. Then we have this antenna line coming to a transformer -- which I'm pointing to -- off of which run two antenna lines, lead-in lines; is that right? A. Pardon me. What did you refer to as the transformer?

Q. This is the transformer. A. That is grounded?

Q. No, the transformer is not, but the amplifier is; is that right?

A. So you say.

Q. Well, I am asking you to assume what I tell you is so, sir. A.

153 All right.

Q. From the transformer run two lines, antenna lines, one to a metal conduit in which are light-colored telephone lines; is that right? Coming to a junction box --

* * * * *

154 THE CHAIRMAN: I understand there is another thought, Mr. Friedman. The witness has stated, as I recall, he is not familiar with that type of equipment. Therefore, may I inquire what do you expect to gain from this?

Isn't that correct?

THE WITNESS: I said I was not familiar with that equipment, because I don't know what his specific lay-out is.

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REDIRECT EXAMINATION

BY MR. ROBBINS:

Q. On cross examination, Mr. Lloyd, you were asked if you had any experience and knowledge of the hazards in a system such as we have described here. What was your answer to that, sir? A. Well, as I recall, I gave a qualified answer. I don't remember the details.

155 THE CHAIRMAN: I think you stated, and repeated, didn't you, Mr. Lloyd, you were not familiar with this type of system? Am I correct?

THE WITNESS: I did state that; yes.

* * * * *

BY MR. ROBBINS:

Q. Do you have any experience and knowledge of the lightning hazard involved with TV antenna systems on their own? A. Well, it has been our experience that antenna systems for television reception that are on the top of buildings are frequently struck by lightning.

* * * * *

Q. Now in your experience in this type of work for the -- involving the possible hazards of lightning, have you ever encountered a television antenna lead-in system passing through the same conduit as telephone
156 wires, as has been described here? A. I am not familiar with any systems of that type.

* * * * *

157 **RECROSS EXAMINATION**

BY MR. FRIEDMAN:

Q. Are you suggesting, Mr. Lloyd, because there is an incidence of lightning striking aerials on roofs that we eliminate this kind of installation entirely?

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THE WITNESS: That isn't my intent.

* * * * *

FURTHER EXAMINATION BY THE BOARD

BY MR. HALLER:

Q. Mr. Lloyd, I believe you testified you had something to do with

writing this provision in the National Electrical Code. A. No, not this specific provision.

Q. Well, are you not on the Committee 15, or whatever you call it? A. No, I am not on Panel 15. I am on other panels and am a member
158 of the correlating committee that reviews all changes in the Code.

Q. Then I will put it this way: You are familiar with that part of the electrical code, the standard electrical code which prohibits the introduction of more than one power line in the same conduit; is that correct? A. Would you mind giving the specific reference?

Q. I am referring to the section of your National Code from which the District Code was patterned. A. Well, there were two sections of the Code referred to at different times, and I want to be sure which one you are referring to.

Q. I am not sure myself, so I can't answer that.

In the National Code the Section 810 and in the District Code Section 8123.2 it says: "Interior antennas and indoor lead-ins shall not be run nearer than two inches to conductors of other wiring systems in the same premises" and so forth.

You are familiar with that? A. Yes.

Q. My question is: was the purpose -- if you know; if you don't know, you can't answer -- was the purpose in establishing this standard code by the code authority, the National Code authority, to eliminate any danger, or at least minimize the danger of a lightning bolt hitting the
159 roof antenna and being induced into possibly telephone lines?

* * * * *

MR. FRIEDMAN: I object to this question, Mr. Haller.

Mr. Chairman and members of this Board, I think we are trying to elicit a conclusion from a witness who is neither on that panel nor familiar with this system or equipment. Therefore, by his own admission, he is not competent to testify about the cause or effect of the reasons behind this section.

THE CHAIRMAN: I agree with you, Mr. Friedman, but, however, I will let the question stand, and the answer, for what it's worth. And

when I say that, that is no reflection on the witness.

THE WITNESS: I believe it was the intent to provide this protection by requiring this separation.

BY MR. HALLER:

Q. It was a safety factor: that's what I'm getting at; is that true?

MR. FRIEDMAN: My objection still stands.

THE WITNESS: When you say "safety factor," I presume you mean to prevent the transfer of a potential from one system to another?

MR. HALLER: That's what I'm trying to say.

160 THE WITNESS: Correct.

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161 THE CHAIRMAN: Yes, go ahead.

THE WITNESS: I said that I was not familiar with this specific equipment. I didn't say that I was not familiar with that type of equipment. There is a difference.

In other words, I don't know what specific equipment he has employed in his system. I didn't say I was not familiar with these types of equipment used for this purpose, and I wanted that clearly understood.

FURTHER RECROSS EXAMINATION

BY MR. FRIEDMAN:

Q. Mr. Lloyd, are you familiar with the Jerrold Electronics Company of Philadelphia? A. Some of it.

Q. And this is what we have on the board, Jerrold electronic equipment. Are you familiar with it? A. I am familiar with some of it.

Q. Are you familiar with this specific equipment mounted on this board? A. I would never claim to know what is inside of a piece of
162 equipment until I examined it.

THE CHAIRMAN: Your answer, then, is No?

THE WITNESS: My answer is that I don't know what is in there until I look at it.

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JOHN W. LEWIS

was recalled to the stand and, having been previously duly sworn, was examined and testified further as follows:

FURTHER DIRECT EXAMINATION

BY MR. ROBBINS:

Q. Mr. Lewis, did you visit the premises involved? A. Yes.

163 Q. How many times? A. Twice.

Q. Was the television antenna system grounded when you were there? A. Not the first time.

Q. Was it grounded the second time? A. Yes.

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164 ISADORE LIEBERMAN

was called as a witness and, having been previously duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. FRIEDMAN:

Q. Your name is Isadore Lieberman? A. Yes.

Q. With what firm are you connected, sir? A. I am connected with the Entron Company here in Bladensburg, Maryland.

* * * * *

Q. What is the Entron Company? A. The Entron Company is a manufacturer of equipment similar to that shown here on the board.

Q. Similar to Jerrold equipment? A. That's correct.

Q. And what kind of work does your firm do besides manufacture that kind of equipment? A. We install equipment such as this.

Q. Throughout the country? A. Throughout the country.

165 Q. How extensive are your installations? A. At the present time we are installing systems quoted to about 500 miles of transmission. Teams from California to Pennsylvania and down as far south as New Mexico.

Q. Does your firm install TV antenna equipment for entire communities? A. That's the basic function of the Systems Construction

Division. We don't install master systems, per se.

Q. But you manufacture equipment for this kind of master television antenna? A. We do.

Q. What is your education? A. I am a graduate of Brooklyn Polytechnic Institute.

Q. What year? A. 1954.

Q. State briefly and completely what your experience has been since your graduation from college. A. I worked for Commercial Radio Sound Corporation, and prior to my graduation from college I worked there, where I had the honor of being involved in the first master antenna installation ever made, with hand-made equipment, in the Park Lane Hotel in New York, when they first realized the problems of transmission.

166 Since that time I have designed hundreds of systems for the Commercial Radio Sound Corporation.

Subsequent to that I went to the Bell Television, Incorporated, and finally here at Entron.

Q. How long have you been connected with Entron? A. Three and a half years.

Q. In what capacity? A. Manager of their Systems Construction Division.

Q. Now, at our request did you go to 5601 2nd Street, Northwest, the property here in question, and inspect the installation of the master TV antenna system? A. I did.

Q. When did you do that? A. On Saturday, the 23rd of June.

Q. Now, I am referring you to this board behind us here. Would you say that is a true scale set up of the system which is installed in this apartment building?

* * * * *

167 Q. Would you say that that is a small version of the system installed in the apartment building? A. It's a fair representation of what you have here.

Q. Now will you step over to it, and speak up so all of us may

hear you, and describe what that system is, and each of its component parts.

* * * * *

THE WITNESS: Basically the system consists of an antenna which receives whenever information is available in the area.

* * * * *

168 The antenna is connected electrically through a coaxial cable down to an amplifier.

THE CHAIRMAN: By that "amplifier," you mean that large metal box at the center of the board?

THE WITNESS: My competitor's equipment; yes.

The coaxial cable, although not shown here, is run in conduit to the basement. And the conduit is grounded to a cold water pipe in the basement.

BY MR. FRIEDMAN:

Q. Let me interrupt you.

You mean in a metal conduit to the amplifier? **A.** No. Down to the basement. Then it is run exposed along the basement walls to the amplifier.

Q. Is that metal conduit grounded? **A.** It is.

Q. Leading from the TV antenna itself is there another ground?

A. I didn't check the TV antenna per se, but I was advised by the electrical contractor, Mr. Harris, such a ground had been installed.

Q. Directly from the antenna? **A.** To a cold water pipe.

* * * * *

169 In the basement of this building we have this amplifier to which the antenna is connected. This amplifier is also connected to an AC power outlet.

THE CHAIRMAN: That is in the lower right-hand corner.

THE WITNESS: In this particular case it's in the lower right-hand corner.

This provides energy for the amplifier.

The RF signals, television signals, are amplified in the amplifier. Then the output of the amplifier is connected to a transformer, or splitter,

where the signal is split two ways, and the signal then is carried over the coaxial cable through conduit to an outlet, or a number of outlets, in the apartments.

BY MR. FRIEDMAN:

Q. Is there a direct ground from the amplifier box?

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A. There is a ground from the amplifier box to the nearest cold water
170 pipe.

Q. Is that that white wire? A. Right here. (Indicating).

Q. Now will you continue from there? A. As far as I can determine, the system has been installed in accordance with all applicable codes.

I checked both the National Electrical Safety Code --

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I say this system is installed in accordance with all applicable codes.

* * * * *

I checked the National Electrical Safety Code, which is issued by the Department of Commerce, and I checked the National Electrical Code which is issued by the Board of Fire Underwriters, and I also checked the District Code which is applicable to the National Electrical Code. And I might say that this conforms to all applicable codes.

171 Q. Mr. Lieberman, will you tell me in your opinion whether this installation meets the highest standards of equipment and protection and safety? A. There are better ways to do an installation like this, but in accordance with what I have seen in this area it would meet the highest standard they have in this area.

Q. Now, the metal conduits themselves, they are also grounded?

A. They are.

Q. I see two junction boxes, one with a single wire coming out, the one of ivory wire as I look at the board, and to the left of that is an ivory cover with several aluminum bolts and nuts with a double connection there. Which is which? And will you tell us what function each serves? A. The former is a telephone outlet box.

Q. The one on the extreme right as we look at it? A. In the upper righthand corner. And the latter is a television outlet box with the isolating device that connects the television receivers.

Q. Is that connection grounded? A. The isolating device is grounded.

172 Q. Now, Mr. Lieberman, will you state what the purpose of grounding all this equipment is? A. To provide safety, basically, for the subscribers, --

Q. Now, --

Excuse me. A. -- and, of course, since safety has been stressed here so often, that would be the primary concern here. It's also of primary concern to us that it provides an electronic path for return to ground of the signal.

Q. What do you mean by "electronic path for return to ground of the signal?"

* * * * *

If you can, tell us in lay language. A. In lay language: provide for the completion of the circuit, just as you have two wires coming into an electric light bulb. The electricity goes into the bulb, out through the bulb and back to the source of its energy.

Q. I see.

Now, do you know what the energy output of those TV antenna lines is? A. That is approximately 40 BB, which is about 100,000 microvolts, about a tenth of a volt.

173 Q. About a tenth of a volt? A. Yes.

Q. How powerful is a tenth of a volt? Can you give us an illustration? A. Well, let me see --

Q. Will it light a bulb? A. It's unlikely. Again, it all depends -- There is a lot of extenuating factors here, and a lot of things to be taken into consideration. If you go up high enough in frequency, a tenth of a volt will light a neon bulb.

Q. Now is there any contact between the telephone line and the TV antenna line directly? -- I mean the center wire itself in this system we are talking about? A. There is no contact as far as I can determine

between any conductors in the conduit system.

Q. Let me assume something which isn't factual, but for the sake of discussion let's assume that you expose the bare wire on the TV line and expose the bare wire of the telephone line, and you brought both bare wires into contact with each other. What happens? A. It depends upon which wires you exposed.

Now you have a ringing circuit and a battery circuit on the telephone circuit, or lines, and you also have a ground.

Q. Right. A. Now it could conceivably be, if you grounded any
174 one of those circuits: No. 1, you wouldn't get any ring, and, No.
2, you wouldn't get any talking.

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If any one of those circuits are grounded you could disable the telephone circuit.

Q. Is that all that would happen? A. That is all that would happen, because the telephone circuits are well protected.

Q. Now, there has been some talk here, Mr. Lieberman, about lightning, and I want to touch on that, if I may.

In this system we are discussing here, assuming lightning would strike that antenna on the roof of the building, would you tell me what would happen? A. The lightning, in all likelihood, would travel down the conduit system, --

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175 THE WITNESS: In conforming to all codes we find that many times the greatest amount of protection you can afford to an installation isn't quite enough. For example, in Stuart, Florida this year a 300-foot tower was struck. The lightning, which should have run off the ground, somehow got onto the power building, which is remote from any community, and did damage within the building. And this happened and shorted out the power panels and everything else without breaking the circuit breakers on the power building until much later. And this was passed by the Underwriters Laboratories as a safety system.

Q. With respect to this installation, assuming that lightning struck the antenna on the roof of the building, what would happen? A. That
176 normally would be drained off through the ground.

Q. You talk about the first ground? A. The lightning charge through the first ground and through the coaxial cable, through the amplifier, all eventually would funnel to the basic cold water system which is the grounding system.

Q. And is it correct to say that lightning follows the path of least resistance to the ground? A. That's correct.

Q. Now, comparing the ground wire -- that white heavy-duty wire which you mentioned -- to the coaxial cable, which line would carry more of a lightning charge, if at all? A. The white wire, which is a very low resistance wire on the order of No. 10 wire, as compared to No. 26 wire or No. 22 wire for the central conductor of the coaxial cable. It's like having a half-inch water pipe versus a 2-inch water pipe: most of the water would go down the 2-inch pipe -- which is the white wire. The other, whatever is left, will go down the half-inch water pipe.

Q. And then to carry that analogy further, that half-inch water pipe again subdivides into the other grounds? A. Whatever comes down the line will again be carried down to the sewer.

177 Q. Now, Mr. Lieberman, is there any danger or hazard connected with this system? A. None whatsoever.

Q. In your judgment and in your opinion is this a safe, competent installation that meets all standards of safety and hazard? A. I have stated that, yes.

Q. Now, Mr. Lieberman, let me ask you to assume another fact. Supposing you have this antenna system installed separately and not enclosed in a metal conduit. A. All right.

Q. Would there be any difference in the system as far as safety or hazard is concerned as it is now? A. The metal conduit system itself affords a certain amount of safety in that, again, if the conduit system is grounded it will cause any electrical charge that hits the system to be drained off rather than into the cold water system.

Q. So that, as I understand you, that enclosure in the metal conduits adds to the safety, if such be the case. A. In my opinion, yes.

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178 Q. In your opinion is this continuous -- Would you consider that to be a permanently separated item from another conductor by continuous and firmly fixed non-conductor, or flexible tubing? A. The di-electric? No.

Q. How about the flexible metal covering on top of that? A. No.

Q. Would you consider any portion here under that category?

179 A. I would consider the jacket to be --

Let me read that. Firmly fixed non-conductive.

Q. By the jacket you mean the outside covering? A. The outside covering or flexible tubing.

* * * * *

Q. What would be the reason for prohibiting a telephone or telegraph or signal system to be enclosed within the same metal enclosure as a light or power system? A. The reason for that is to prevent
180 a breakdown between the two systems.

Q. Now further on in that same section, 30-11, it permits expressly light or power systems of 600 volts or less to occupy the same enclosure.

How would you compare that to the TV lead-in line and the telephone line occupying the same enclosure? A. It will conform to that specification in that, according to a prior witness, the maximum voltage on a telephone line is in the order of 105 volts, and in the order of a 10th of a volt for the RF system carrying the television signal.

Q. Would it be correct or fair for me to state that the enclosure of the telephone and the TV antenna line is even safer than enclosing light and power of 600 volts in the same enclosure, if such be the case? A. Well, it falls in this same category.

Q. In the same category? A. Yes.

Q. Now, in the light of the language used in this electrical code, and the National Electrical Code, would you consider specifically telephone or TV antenna lines to be wiring systems?

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A. The telephone systems themselves, as advertised on the Bell Telephone Systems, are, per se, systems. Likewise the television systems that we install in the apartment houses are master antenna systems: a system having a source of energy and services that you could distribute over wiring or other means.

Q. Now, are you familiar with the fact that the telephone company runs in the same enclosure coaxial and telephone lines -- coaxial cables and telephone lines? A. I am.

Q. How would you compare the potential in safety or hazard, as the case may be, between that kind of a system and the system here under discussion with the telephone line and TV antenna line in the same enclosure? A. The analogy is right there in that they're identical systems, in that the source of energy in this one case is in camera or a distribution amplifier.

Q. Or transmitting system. A. Or a transmitting system. And the source of these systems are master antennae.

Q. Are you familiar with the fact, too, that the telephone company encloses in the same enclosures both telephone lines and inter-communicating systems? A. I am aware of that, yes.

Q. Does this TV and telephone line enclosed in the same system
182 offer a greater hazard or danger than the inter-communicating systems and the telephone line in the same enclosure? A. In my opinion they wouldn't.

Q. Although Jerrold Electronics is a competitor of your firm, Entron, -- A. Yes.

Q. -- what would you say with respect to the caliber and quality of the Jerrold equipment used in this particular job? A. It's of the standard which is normally found on this type of work. There is similar equipment manufactured by many companies, including Entron.

THE CHAIRMAN: What do you mean by that?

THE WITNESS: Well, for every piece of equipment you have on

the board manufactured by Jerrold you will find a comparable piece of equipment manufactured by Entro or any of the manufacturers --

THE CHAIRMAN: I understand that; but by that do you mean it's superior?

THE WITNESS: Every manufacturer thinks his own equipment is superior.

THE CHAIRMAN: But you would rate this as superior, or call the equipment --

183 THE WITNESS: It's a fine piece of gear, but I just can't bring myself to say so, sir.

THE CHAIRMAN: That's understandable.

BY MR. FRIEDMAN:

Q. Would you include it in the larger category of superior equipment? A. Yes. It's a good equipment.

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By "superior," there are all kinds of standards that you accept -- It's as good as anything that we make.

Q. And as good as anything that is made elsewhere? A. I can say that safely, yes.

Q. Does it meet with the standards of the Fire Underwriters? A. I believe I saw the thing marked with a UL stamp.

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CROSS EXAMINATION

BY MR. ROBBINS:

Q. Mr. Lieberman, you stated that in your opinion this type of installation was neither a violation of the National Electrical Code, nor of the District of Columbia Electrical Code. Did you check with --

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BY MR. ROBBINS:

Q. I will ask you first, did you not state in your opinion this installation in question was a violation of neither the National Electrical Code nor of the District of Columbia Electrical Code? A. I said that, yes.

Q. Did you check with any members of the Electrical Code Committee? A. No, I didn't.

Q. Did you check with any of the enforcement agencies here in the District of Columbia? A. No, I --

Q. Just answer the question.

You also said, I believe, this was as safe as any you had seen in the area, but you said it could be done safer.

MR. FRIEDMAN: He didn't say that; he said there are other ways it could be done.

BY MR. ROBBINS:

Q. You say as far as this area was concerned this was about as good as you have seen? A. That's correct.

Q. Have you seen this particular type of installation with the antenna lead-in wires in the same raceway with telephone wires in the District of Columbia? A. No.

185 Q. Now let me ask you this, sir: Would there be more or less potential hazard if the telephone wires and the antenna lead-in wires were a greater distance apart? A. How much farther apart? If they weren't in the same building there wouldn't be any hazard at all.

Q. All right, sir.

Now, does the hazard increase or decrease as you lengthen the distance twixt the two? A. Assuming that there is a hazard, the hazard between the two different potentials -- or the potential hazard between the two different currents of two different voltages running in adjacent wiring will go up as the proximity is reduced.

Q. You mean the hazard will go up as the proximity is increased, as they get closer? A. As the proximity is increased, right.

Q. You increase proximity as you get closer. A. Right.

Q. Do you feel there is any potential hazard from lightning in this system? A. I feel that there is no-- There is a potential hazard in any antenna system.

186 Q. Okay; in any one. Now, is that potential hazard increased or decreased when you increase the proximity or the telephone wires to the antenna lead-in wires? A. The way this system is installed?

Q. No. Let's start over.

You say there is a potential hazard from an antenna lead-in system; is that correct? A. Correct.

Q. Now, if you have another wiring system in the building, is the potential hazard increased or decreased as you bring that other wiring system closer to the television antenna lead-in system? A. It's increased.

Q. * * * There was testimony -- and you said that you believe that to be the case -- that the telephone company ran certain coaxial cables in the same conduit and raceway with their telephone wires; is that correct? A. That's right.

Q. Is the lightning hazard from that as great as from an antenna lead-in system which has the antenna extended above the roof of the building? A. There are many extenuating circumstances involved here. The antenna lead-in, per se, doesn't run the width of the telephone wiring,
187 and these master antenna systems, the television lead-in wiring from the antenna, runs to an amplifier; from the amplifier it's then distributed over the same coaxial system.

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Therefore you have, if you will, a program source originating from a camera and then being distributed through the same conduit system, which would afford the same hazard as this system would.

Q. I'm not sure if I understand you.

You say, then, the potential hazard would be as great as if there were an actual antenna above the building? A. Assuming that there was a hazard.

Q. You have told us before there was a potential hazard in all antenna lead-in systems. A. Correct.

Q. Is there also the same potential hazard in all systems such as the one the telephone company admits they run themselves? A. There is a hazard there, too.

Q. Would you say it is as great? A. Yes. It isn't as cut and dried as what you are trying to say. The point where the coaxial cable and the telephone cable both are run is after the lead-in; after the point
188 of danger is passed.

Q. Oh, so you feel past the amplifier there is no point of danger, is that correct? A. That's my opinion.

* * * * *

Q. I want to read something to you, and I am going to ask you whether or not you agree with this:

"After careful consideration of the details outlined in your letter, which are to the effect that the television antenna lead-in wires were run in the same raceway as the telephone conductors, it seems clear that such an installation would not comply with the literal wording or with the intent of the aforementioned paragraph."

The aforementioned paragraph is Section 810-18(b) of the National Electrical Code and Section 8-123.2 of the D. C. Electrical Code. A. But this is not the television lead-in wire --

Q. What is this? A. -- that we are running here.

Q. All right. A. We are running the distribution system. The
189 telephone lead-in wire goes to the amplifier.

Q. Would you call this an indoor lead-in. A. The lead-in per se is the wire that runs from the antenna to the amplifier.

Q. What is an indoor antenna? A. An indoor antenna is an antenna that is mounted on a television receiver, if that's what you're talking about.

Q. Now, let me ask you this, then: you say indoor antennas and indoor lead-ins. You don't consider this an indoor lead-in? A. No. This is a distribution system (indicating). The lead-in is from the antenna

to the amplifier. There is a division of-- The point from where the antenna lead-in comes in and then the distribution system takes over --

* * * * *

Q. Do you not call this entire thing an antenna lead-in system?

A. No. A master antenna system can be separated into three components: the antenna, the head-end, and the distribution system. The antennas are connected to the head-end which boosts the signal and provides the distribution, and at that point the distribution system is connected.

190 Q. From your statement a lead-in wire isn't part of the system at all. A. It's part of the master antenna system, yes. I just said a master antenna system consists of three components, antennas, a head-end which includes the amplifiers and the splitters, and a distribution system which includes the wiring and outlets.

Q. In common, lay talk, are not the wires that actually go to your set called lead-ins, antenna lead-ins? A. It's a good way to start a semantic argument.

I would say no.

Q. No? A. No.

* * * * *

Q. Is it your opinion, then, that the wires from the television system in general, that are in the same raceway with the telephone wires, are not antenna lead-ins? A. No.

Q. You say they are merely distribution? A. That's correct.

191 Q. Is this not where your diffusion begins of your current, where you are breaking it down? A. Well, to draw an analogy to a power system, the power system has a lead-in to a distribution panel, and from the distribution panel you go to your service -- outlets, lights, etcetera. We have a similar system where we go from an antenna to a distribution panel, if you want, but we call it a head end, and distribute to the outlets.

Q. Let me ask: have you seen this, which is Government Exhibit No. 1? A. No.

Q. Which has been entered without objection, and which appellant admits is a schematic drawing of the installation?

MR. FRIEDMAN: I reserved my objection to it until I have had a chance to study it. I am not certain.

BY MR. ROBBINS:

Q. Would you say that that is an accurate schematic drawing of the installation, based upon your inspection? A. Except for an extra ground or two, I would say it's accurate.

Q. An extra what, sir? A. An extra ground or two. And if this is supposed to be a representation of the location of the antenna, the
192 antenna actually is on top of the building, not in the basement.

Q. Yes, I believe that is understood. A. Now the antenna is grounded at the antenna location, at that point (indicating). The conduit system is also grounded, and the antenna wiring runs in common with it down into the basement.

THE CHAIRMAN: Isn't that the correction, Mr. Robbins, made by your earlier witness, Mr. Lewis?

MR. ROBBINS: I believe that's where he has his arrow.

THE WITNESS: He described this arrow as being a grounding conductor, but there is also a grounding conductor at the antenna site, at the antenna location on the roof, which is a separate conductor running to a cold water pipe in the ground.

THE CHAIRMAN: What would you call that cold water pipe ground?

THE WITNESS: A cold water pipe, in this type of building.

BY MR. ROBBINS:

Q. Can you show me on that drawing where the lead-in system ends?

A. It ends at the input to this vacuum tube, the TV signal booster.

193 Q. That is where you consider it ends? A. Yes.

Q. Now, if I told you with regard to that statement I read to you before that that drawing, with the exception of this inked-in grounding conductor here (indicating) had been sent along with the request for this opinion, showing this system, and then the statement with regard to the lead-in wires was made, would that change your opinion any?

MR. FRIEDMAN: Opinion of what?

MR. ROBBINS: He stated, I believe, that he took exception -- that

the lead-in wires weren't run in the same raceways as telephone conductors. And I will agree with Mr. Lieberman on one thing: I think we are getting a little semantical. It's my contention we are considering the entire thing, and he is breaking it down to an antenna lead-in and to a distributor. And that's why I asked him if that drawing that went along with the request --

BY MR. ROBBINS:

Q. Now that would show to you, would it not, where the antenna system came in and where it was distributed from? A. That's correct, yes. They don't delineate what is AC power, except --- Yes it does. It's essentially correct.

194 MR. ROBBINS: Well, I would like to note at this time, since that has been introduced as well as the letter going to Mr. Geiges and his return letter -- I would like to state that this schematic drawing went along with it.

* * * * *

THE CHAIRMAN: Isn't it so, Mr. Robbins, that today in this proceeding Mr. Lewis made a correction on that?

MR. ROBBINS: Yes.

THE CHAIRMAN: So that in fact that wasn't a full and complete representation of the situation. Now whether it's a vital one, I don't know. You might ask the witness.

MR. ROBBINS: I think I will leave that question to be asked by the Board; and if not, the Board may draw its own conclusions from what I have presented on that, sir.

BY MR. ROBBINS:

Q. Now I want to read you something else, sir.

THE CHAIRMAN: Is this from that same letter?

195 MR. ROBBINS: Yes, sir.

BY MR. ROBBINS:

Q. (Continuing) The basis for this opinion, as to intent, is the fact that television antennas being located above the roofline of the building

are natural targets for lightning discharge."

Do you agree with that, sir? A. Yes.

Q. "In the event of such discharge it's desirable to keep the antenna lead-in wires separate from conductors of other systems, and particularly the conductors of a telephone system, because of it's connection to hand-held instruments."

Do you agree with that, sir? A. No.

Q. May I ask why? A. Again, the antenna, per se, is susceptible to lightning discharge. The antenna lead-in wires are kept separate from conductors of other systems, and unless there is a complete understanding of this particular circuitry there might be some idea that the antenna lead-in is running close to the telephone company conductors.

Q. Then I also take it you disagree with the statement of Mr. Lloyd as to the potential lightning hazard; is that correct, sir? A. And what
196 statement is that?

Q. You were, I believe, present when Mr. Lloyd testified as to the danger in this system and the transference of current from -- coming down from the antenna, of lightning, then being transferred to the telephone wire. A. In this particular system?

Q. Yes. A. I take exception to his interpretation, yes.

THE CHAIRMAN: Again may I remind counsel that, as I recall, the witness, Mr. Lloyd, stated he wasn't familiar with this system.

MR. FRIEDMAN: Nor had he inspected this system.

THE CHAIRMAN: That's correct.

THE WITNESS: Nor is this diagram complete.

BY MR. ROBBINS:

Q. What is lacking? A. The grounding at the antenna site, at the antenna location.

Q. I believe Mr. Lloyd was asked questions as to if this system were properly grounded. I believe that will be reflected in the record.

A. I don't think Mr. Lloyd looked at this diagram.

Q. I don't believe he did. Well, he didn't. A. Well, the point is this:

197 If he looked at this diagram he would have noted that with the grounds that we have on the system there would be no question but what the system would be safe the way it has been installed.

* * * * *

198 EXAMINATION BY THE BOARD

BY MR. HALLER:

Q. Mr. Lieberman, I believe you testified you made an inspection of this installation last Saturday. A. That's correct. It was a superficial inspection, true, but I saw enough to satisfy myself.

Q. When I believe you testified also up by that diagram, or speciman, or board, whatever it is, in your opinion this installation at this property in question complies in every respect with the Department of Commerce Code, Underwriters Code, and District Code; is that correct? A. Yes, it is.

Q. If that is true, I wonder why we are here.

MR. FRIEDMAN: I have been wondering about that for two years.

MR. ROBBINS: I have no doubt why we are here. It's a clear violation.

MR. HALLER: I have one final question to ask Mr. Lieberman.

BY MR. HALLER:

199 Q. According to your testimony, Mr. Lieberman, I gather that your company has quite an extensive business in the manufacture and installation of master TV installations; is that correct? A. We don't install master TV systems, per se.

Q. You don't? A. We manufacture the equipment which goes into these master TV systems.

Q. But you don't install them? A. We install community systems.

Q. Such as apartment houses? A. No. We install the community antenna systems in cities. And, in fact, they are master antenna systems that encompass whole cities.

Q. Well, you sell your equipment to contractors who do install it in apartment houses? A. Right.

Q. In that connection I assume you make certain inspections of it, of that installation. A. No, we don't. It would be rather difficult for us

to make the inspection. We assist contractors by writing specifications for them for the installation, making up diagrams, and what-not.

Q. My question is this: have you ever in your experience seen a master TV installation in any apartment house where the TV wires were run in the same conduit with the telephone wires? A. Yes, many
200 of them.

Q. You have? A. Yes.

Q. In the District of Columbia? A. No.

Q. Well, I should have stated in the District of Columbia. A. No.

Q. You haven't seen any such installations in the District of Columbia? A. No, I have not.

Q. Thank you. A. I have only seen one system in the District of Columbia.

* * * * *

FURTHER CROSS-EXAMINATION

BY MR. ROBBINS:

Q. Mr. Lieberman, if for any reason the ground of this system becomes defective, would there then be a danger of transference of the lightning to the telephone wires? A. If the ground would become defective, the subscribers to this television system will in all likelihood complain of it.

Q. I didn't ask what they would do, sir, if you will pardon me. I asked you would there be a decided increase in potential hazard if this ground system were faulty. A. Yes, it would be the same as if a wire would break serving a home with power; the power wouldn't get through.

Q. Now, I trust you recognize that my question as to potential hazard related to the telephone wires being in the same system, and there being a ground break. A. If the ground should break, there is no telling where the lightning would discharge through the system.

* * * * *

FURTHER EXAMINATION BY THE BOARD

BY THE CHAIRMAN:

Q. Have you as a person ever made any study of the causes of fires in television sets throughout the country?

203 Now as a basis for that I will say here that there were eight or nine children burned to death last year.

MR. FRIEDMAN: Or electrocuted?

THE CHAIRMAN: Yes.

BY THE CHAIRMAN:

Q. Now have you made any study yourself of the cause of fires in television sets? A. I have never made a study of the cause of fires in television sets.

THE CHAIRMAN: Very well.

Any further questions?

MR. FRIEDMAN: How about the cases of electrocution by coming in contact with television sets? Do you know the causes for them, or have you made sufficient inquire to ascertain the causes?

THE WITNESS: In all cases it has been faulty manufacture of sets, or faulty make of sets that has caused the electrocution.

MR. FRIEDMAN: When you say "set," you mean the television set, per se?

THE WITNESS: The television receiver, per se.

THE CHAIRMAN: As I recall that is directly in line with the testimony offered previously.

204 You attribute that to the fact that certain manufacturers didn't inspect their products before they sold it; and, furthermore, faulty maintenance. Would you agree with that?

THE WITNESS: I would say so.

THE CHAIRMAN: I think it's important to hear, and I think it ought to be suggested to our Commissioners that they recommend proper action be taken on legislation on that.

* * * * *

FURTHER CROSS-EXAMINATION

BY MR. ROBBINS:

Q. I believe the term for these sets when someone is electrocuted

is a "hot chassis," is that correct? A. That's correct.

Q. Now, is there any danger in there being a feedback through the distribution, or whatever you want to call it -- as I call them, antenna lead-ins -- back into the system? A. None, because each outlet is isolated -- each set or receiver, or outlet, is isolated from the adjacent one to the point where there will be possibilities of reducing it on the order of 40 VB, which is a ratio of about 100-to-1.

Q. I don't quite follow you, sir. A. Well, in effect the cover plate
205 has built into it an isolating capacitor which isolates adjacent outlets a minimum of approximately 40 DB.

Q. Now let me ask you this: what is the voltage in a hot chassis, can you tell us that? A. Well, it's the line voltage, which is 117 volts normally, AC.

THE CHAIRMAN: And his point was that these fires were caused by faulty manufacture of television set, or improper repairs, and had nothing to do with wiring such as is involved in this case.

Do you agree with that?

THE WITNESS: I most certainly would.

* * * * *

ROBERT E. FISCHALL

was called as a witness and, having been previously duly sworn, was examined and testified as follows:

206 DIRECT EXAMINATION

BY MR. FRIEDMAN:

* * * * *

Q. Where are you employed? A. At the Johns Hopkins University Applied Physics Laboratory, which is in Silver Spring, Maryland.

Q. What are your duties there? A. I am a physicist on the staff. I am also a project supervisor for power systems.

Q. What is your education? A. I received my bachelor of science degree in engineering at Duke University in 1951, and my master of science degree in physics from the University of Maryland in 1953.

Q. Now, you deal in electronics as part of your duties there, do you?

A. Yes. Since being graduated in 1951 I have worked in electrical instrumentations of all sorts.

Q. Now, at my request did you go to premises 5601-09 on Saturday to inspect this TV antenna system? A. I did.

Q. Is that model on the board, that plywood board, Appellant's Exhibit 3, I believe, a pretty fair representation of the system that is
207 in the buildings we talked about? A. I would say that is an accurate representation of how the system is put together.

Q. Now, you have heard Mr. Lieberman testify? A. Yes, I have.

Q. Do you agree with his presentation with regard to this system?
A. Yes, I would agree with it.

I would also like to emphasize the fact that the lead-in, from the antenna down to the basement, at which point it is grounded, is all in a separate conduit system quite separate from the phone system, and that the conduit is grounded. The mast of the TV antenna is grounded. There is a separate ground line to the antenna itself. And all these are separately grounded and run down to the basement through a conduit in which there are no telephone lines. There it goes into the amplifier, that large gray box that you saw.

Q. Which is grounded? A. Which is grounded. It has its chassis grounded. And it then runs through a transformer system which gives additional isolation, and then runs many feet before it ever enters a conduit in which there are telephone lines.

208 I believe this factor is extremely significant in this installation.

Q. What would you say as to its qualities as far as safety is concerned?
A. As far as safety is concerned, as Mr. Lloyd previously testified, the way that lightning is transmitted down a wire, and the way it will spread out once it hits something, depends upon the relative resistance of different paths to ground; that is, the lightning will prefer to go down that wire by which it can most easily get to ground. It will split up: if there is a 10-inch pipe and a 1-inch pipe, ten times as much will go down the 10-inch pipe as the 1-inch pipe; some will go down the small pipe, as Mr. Lloyd properly presented.

In this case we have several pipes from the antenna to ground, several of them before it ever enters a conduit in which the telephone lines are contained. And for that reason I would say there is a vanishingly small possibility that anything could ever be transferred to the telephone lines when connected in this manner.

Q. Would you say his is a safe and expert workmanship-like job?

A. I would say so. I would say it's much safer than the one in my home, and the one in most people's home where we normally run it from the TV antenna to a television receiver through a lead-in wire. These are not
209 normally grounded in several places; they don't have this protection.

I would say this system is as safe as the present state of the art could make it.

Q. What would you say with regard to its relative safety, or the presence or lack of existence of hazard or danger, if this TV antenna system were not contained in a metal conduit? A. I don't believe that at the point where the telephone wires and the TV wires run together, I don't believe at that point there is any more significance whether it's a conduit or miles apart.

Mr. Lloyd gave the example that they usually say they should be further apart than six feet where lightning hits, and I believe this is more than maintained by having the initial point where the lightning enters, namely the antenna, -- this is widely separated from the telephone line. The point where it does come close to the telephone line is already so far away that the chance of lightning getting through that is vanishingly small.

Therefore I say in the way it's run there is no difference, whether it's run open or in conduit at the point where they are together.

Q. Would you say that if such a thing is possible, the safety factor is increased by reason of enclosing the in metal conduits which are
210 themselves grounded? A. I would say the safety factor is increased by running the lead-in wire from the antenna down to the basement, by running that in a conduit, definitely improves the safety because the lightning that could get out of any grounding wire in that first conduit, where there are no telephone wires, would naturally go into a big pipe

which is grounded. That is a low resistance path for lightning. Therefore that conduit would afford additional protection against lightning getting down the line to that amplifier and further down other lines.

Q. So in essence you do agree with what Mr. Lieberman says?

A. I would say definitely I do. I just wanted to point out explicitly the fact how these lead-in wires are done, and that the telephone line is quite far removed from the lead-in wires.

* * * * *

CROSS-EXAMINATION

BY MR. ROBBINS:

Q. Do I take your testimony to be, Mr. Fischell, that it's your belief even if those wires, the telephone wires and the lead-in system, where they run together, if they were some six feet apart it would be any safer than it is there? Is that right? Is that your testimony?

211 A. I don't believe that is what I said. What I said was that at the point where the TV lines finally do get together with the phone lines, at that point there is a vanishingly small danger, a quite completely negligible danger whether they are run together or six feet apart.

Q. Is there any difference at all in terms of a safety factor?

A. The answer to that question would have to be Yes. If it were several miles apart, in different buildings, it would still be safer. I wish everything were as safe as that would be. That's the way it's together in the conduit.

* * * * *

THE WITNESS: It doesn't really matter whether it's six feet apart or touching, once they get that far down the line the chances of anything getting that far down the line is extremely remote.

BY MR. ROBBINS:

Q. Now I take it from what you said that you agree with Mr. Lieberman; but as far as possible hazards, you disagree with the witnesses who testified before: is that correct? A. No, I don't believe so.

In my own opinion -- and this is only my opinion -- I don't know if Mr. Lloyd understood exactly that this wire ran through conduits which

212 were grounded, and through this entire system before ever joining -- and being grounded and bonded before ever joining the telephone line. That wasn't brought out clearly, and I don't know if he had known this. I thought his testimony was very competent, but I don't know if that --

Q. Of course the record will show, I believe, one of the first things that was said was there was a conduit running down there. A. Yes, but it was never said the phone lines were excluded at that point.

Q. Oh, yes. This was the line coming down from the antenna on the roof. A. Yes.

Q. And I think it was understood that the phone wires weren't in there. A. I don't believe that it was mentioned before.

* * * * *

213 Q. You have been in the field of physics for a number of years?

A. Eleven years. Physics and electrical engineering.

Q. We lay people like to think of physics and other natural sciences as being exact sciences. A. They are more exact than many, but there are many things we don't know.

Q. Is there an area here in which men educated and experienced in the field can differ?

* * * * *

Q. Are we dealing here, when we talk about the potential hazard and the safety features of systems such as this, are we in an area where well educated and well experienced people in the field can differ? A. Yes.

214 I would say that as far as lightning itself is concerned, it is known to be a very capricious actor. It does behave in a most peculiar manner, because of its tremendous power, that is certainly true. However, I would be very surprised if an engineer, a competent engineer or physicist who looked over this entire system would come to any other conclusion. I don't believe it would be a controversial matter. I believe the vast majority of the competent engineers and physicist would come to the conclusion the way this particular system is installed it is, in fact, safe.

Q. Even though, as you say, lightning is extremely capricious?

A. Yes.

Q. And can do many things? A. That is true.

Q. The unexpected as well as the expected? A. Yes.

* * * * *

215

EXAMINATION BY THE BOARD

BY THE CHAIRMAN:

Q. Have you made any study of the cause of fires in television sets? A. I haven't made any studies. I have only read about a particular incident -- I think it was the daughter of the Vice President of General Electric Company getting electrocuted by a General Electric set. This was about two or three years ago. You might remember the case. I did read it in quite some detail to see if my TV set was put together in the same way.

Q. But it was a defective set, was it not? A. It was both defective and of poor design. There is generally a superior design which GE has, a transformer, which then isolates the electrical power -- it has nothing to do with the antenna -- it isolates the electrical power from the receiver itself. It's called a power transformer, and you see it advertised on TV sets today. To save money they left that out of earlier models, and this was the combination, that plus a defect in the set, which caused the hazard, the shock hazard, the hot chassis.

* * * * *

218 **MR. FRIEDMAN:** The first thing I would like to do, Mr. Chairman, this morning, is to offer in evidence those exhibits which were marked for identification yesterday.

THE CHAIRMAN: Exhibits 1, 2 and 3.

MR. FRIEDMAN: Appellant's Exhibits 1, 2 and 3.

 No. 1 is this heavy coaxial cable wire.

 No. 2 is the lighter cable coaxial wire; the TV coaxial wire; and

 No. 3 is that plywood board on which we have mounted the television antenna and a model of the installation of the system which is installed in the apartment house under discussion.

 So I offer those three into evidence as exhibits of the Appellant.

MR. ROBBINS: No objection.

THE CHAIRMAN: They are accepted.

 (Appellant's Exhibits 1, 2 and 3 for identification were received in evidence.)

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219

ROBERT A. HARRIS

 was called as a witness by and on behalf of the Appellant and being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. FRIEDMAN:

 * * * * *

 Q. You are the Appellant in this proceeding? A. Yes, sir.

 Q. And you are the electrical contractor who installed this system under discussion? A. Yes, sir.

 Q. I ask you first, whether, before you made that installation, you applied for anything in the District Building in connection with it?
A. Yes, sir. I applied for a permit.

 Q. In the Permit Section? A. In the Permit Section.

 Q. What were you told and by whom? A. No permits were necessary for any TV installation or any type of antenna installations; that did not have high masts, such as transmission towers.

220 Q. And do you know who told you that? A. I was told that by, well, one of the Engineers, Norman DeMent -- Mr. Schwartz -- I don't know. I talked to a number of them and if I may go further, in the past, I have put in the same type of installation -- not in a telephone conduit. This is the first.

Q. But had you previously applied for permits in connection with the installation of a TV antenna system? A. Yes, sir.

Q. Were you told the same thing, substantially, in the past?
A. It is the same thing, substantially, in the past. I made a remark that the District was losing revenue --

MR. ROBBINS: I believe we can keep these down to the bare minimum. These facts were stipulated to.

THE CHAIRMAN: I would think so.

[BY MR. FRIEDMAN:]

Q. This Exhibit No. 3, this plywood board on which we have mounted the equipment, Mr. Harris, does that represent a fair model of the installation of the system in the apartment house in question? A. Yes. It is a fairly good facsimile of the same -- it is a good model.

Q. Now, will you tell me what you consider -- on that model, Exhibit No. 3, Appellant's Exhibit No. 3 -- what you consider to be the
221 lead-in-line of that antenna? A. The lead-in-line is a piece of coaxial cable running from the antenna, which is on the roof, which terminates at a connector of the amplifier intended for that purpose.

* * * * *
A. In the basement.

* * * * *
A. It is run through a metal conduit.

Q. Is there any other wire in the metal raceway between the television antenna on the roof, and the amplifier in the basement?

A. No. That radio frequency line is all by itself in that conduit.

* * * * *
222 MR. HALLER: Mr. Chairman, I was going to ask the identical

question that you asked, as to whether, when Mr. Harris applied for his TV antenna installation at the District Building here, if he informed them that he planned to install the lead in wires in the telephone conduit.

THE WITNESS: No, sir.

MR. HALLER: You did not tell them that?

THE WITNESS: I did not inform them.

MR. HALLER: All right. Then the other question I want to ask Mr. Harris is this:

A year or so ago, when we had our original hearing, I believe I asked you the question as to whether you had ever, prior to this installation in question or subsequent thereto, have you ever made another TV antenna installation where you ran the lead-in wires in the telephone conduit?

THE WITNESS: No, sir.

* * * * *

223

CROSS EXAMINATION

BY MR. ROBBINS:

Q. You are the electrical contractor on the job during the beginning, during the construction phases at the beginning? A. Yes, sir.

Q. You were the one who installed these conduits individually -- raceways, whatever you wanted to call them? A. Yes, sir.

Q. Did you ever have an understanding at that time, what those raceways were for? A. Those raceways were put in there at the request of the owner for a telephone, or whatever it may be. If I may go further, there never was any consultation between the telephone company on that job, the owner of the building, and myself, on the size of the conduits. I am just offering this to clarify something that came up yesterday.

Q. You knew at the beginning there would be telephone wires run through this, did you not? A. That there could be telephone wires run through this, yes, sir.

* * * * *

ROMULUS FRATILA

was called as a witness by and on behalf of the Appellant, and being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. FRIEDMAN:

225 Q. Where are you employed, Mr. Fratila? A. I am presently employed at the Radiation Systems, Inc., in Alexandria, Virginia.

Q. In what capacity are you so employed? A. I am a Staff Member there.

Q. What is Radiation Systems, Inc., engaged in? A. We are engaged in the micro-wave design and development of antenna and antenna system. Now, the antenna system includes quite a few number of micro-wave components. This is the filler, duplexer, diplexer, multiplexer, and so forth; in doing the radar antenna system ground base and air borne radar system.

Q. What was your, or is your educational background? A. I have received the Bachelor of Science Physics from Bucknell University in 1953. Since I came to the Washington area in 1956, I have been doing graduate work for the Doctorate at both the University of Maryland and Catholic University.

Q. That is, working for a PhD in Physics? A. Yes, sir.

Q. And to what stage have you progressed in that area? A. At the present time, I anticipate completing the work for the Doctorate in about a year and a half hence.

226 Q. And since, you have been in the Washington area, what firms have you worked for or been employed in? A. The first firm I came with, when I first came to Washington, was MelPar, Inc., at Falls Church.

Q. M-E-L-P-A-R? A. Right.

I did antenna design development work there, from 1956 to 1959. Then I joined the American Machinery Foundry Company in Alexandria where I was a Microwave Physicist from 1959 until 1962, whereby, I then returned to MelPar and to Radiation Systems, Inc., where I am now.

Q. Mr. Fratila, did you at our request make an inspection of the TV antenna system of the premises 5601-5609-Second Street, Northeast?

A. I did.

Q. On Saturday of last week? A. I did.

Q. Did that model, Appellant's Exhibit No. 3, represent a fairly accurate picture of the system there involved? A. It does, yes, sir.

Q. You heard Mr. Lieberman, and you heard the testimony of Mr. Fischell? A. Yes, sir.

Q. Without being repetitious in order to save time, would you tell me whether or not you agree with their presentation and their opinion in
227 all respects? A. I do, in all respects. In particular, I agree with Mr. Fischell's testimony.

Q. What have you to say and what is your opinion with respect to the safety of this system as it was installed, as you inspected it in these premises under discussion? A. In answer to that question, I can only agree with what Mr. Fischell said yesterday. That I would like to have a system like this in my own home.

Q. Would you? A. I feel it is quite safe.

Q. Would you consider that there would be any danger or any hazard involved in that installation? A. The danger or hazard involved in this installation would be extremely remote. You cannot really pin down just exactly what danger can be removed from -- I guess the question yesterday was the lightening bolt. That is a very difficult question to answer; just how much danger can you remove from lightening -- but for my own feeling, I feel that this is about as safe an antenna system as the present state of the art can offer.

Q. That is what I was going to ask you. Can you conceive, under the present state of the art, any more adequately safe -- if that would be
228 the expression -- system or installation than this one in question? A. Offhand, no.

Q. Now, you are familiar with the kind and quality of the equipment that is used there in that installation? A. I am not too familiar with the Jerrold amplifier.

Q. Do you know what the purpose, and in general, the scheme of the amplifier is? A. Yes, I am familiar with that.

Q. Would you consider that the type of equipment and material used in this installation would be considered the highest quality art on the market today? A. I am not that familiar with the quality of the TV equipment on the market but the Jerrold amplifier is a common amplifier used in this type of system and it is a good one.

Q. Let me ask you this question specifically.

In your opinion as an expert, would you say that there was any difference in the safety or any difference in any possible potential danger or hazard in the system as it is presently installed, as compared to the same system where the TV antenna from the amplifier would be -- run -- exposed near or in the vicinity of telephone lines or by itself, even for that matter? A. No. I don't anticipate any large difference or any extra hazards created by this system as opposed to one where the lines
229 are run separately. The basis for an answer like this to that question is, if I may expound a little bit, I made some preliminary calculations on what could be expected in the way of a power distribution.

* * * * *

A. To begin with, the antenna system whereby we have a large ground wire coming from the mast of the antenna to the ground, and the coaxial cable itself, which has the characteristic impedance of 72 ohms -- by characteristic impedance, in microwave terminology, that means if you have a line, a coaxial line or a transmission line long enough at the in-put terminals to this transmission line, it has an impedance which is called the characteristic impedance. Now, for this particular line, it is 72 ohms, if we regard the power split at the antenna, whereby we have 72 ohms represented by the transmission line, to the amplifier.

Q. Is that the lead-in line? A. That is correct; and the grounding wire, to ground -- now, this has an impedance that is extremely small, and in many instances, it is immeasurable.

Just for the sake of quantitative discussion here, let's say it is approximately a quarter of an ohm, which is fairly high for that type of a ground wire.

Q. You are speaking now of the ground wire? A. That is correct.

230 This would represent a power split between the lead-in wire to the amplifier and the ground wire to the ground of approximately 288. This would mean that if energy should enter the antenna, extraneous energy other than the microwave field, that the antenna is supposed to pick up, there would be a power split of 288 to one, safer, should lightning strike that antenna.

Most of the power would go to the ground; in other words, 288 times the power that goes down the transmission line would go to the ground.

Similarly, at the amplifier, which is also grounded, we would have a similar distribution. Consequently, what we really get into, the distribution line which joins in the conduit with the telephone lines is very small -- very small indeed.

Q. And you consider that to be described as infinitesimal?

A. Infinitesimal would be a good description of the hazards from a bolt of lightening.

However, again, I would like to make this point clear. That lightening is extremely unpredictable.

Q. Well, I suppose taking one extreme, Mr. Fratila, you could eliminate the antenna system entirely, and remove the danger of or possibility of lightening striking an antenna, would you not? A. That is true.

231 Q. That would be the maximum on the one hand.

Now, insofar as the maximum protection against such an incident, do I understand from your testimony that this offers the maximum protection, if we are going to have an antenna system? A. This offers very good protection if we are going to have an antenna system, and as far as maximum is concerned, I would say that it approaches the maximum in a sense that I don't know of a better way to do it. Consequently, I would say under those circumstances, it is maximum.

* * * * *

THE CHAIRMAN: In other words, you say it is the best known to science at this stage?

THE WITNESS: That is correct.

CROSS EXAMINATION

BY MR. ROBBINS:

Q. Let me ask you this, sir. Would it be safe or less safe, talking in terms of potential hazards from this capricious lightening, if you had that wire running away from rather than in the same conduit with the telephone wires? A. You are speaking of the distribution wire, now?

232 Q. I am speaking of the type of coaxial cable that is in the same raceway with the telephone wire. A. As I indicated earlier, the difference is so small, it really would not make that much difference, whether they worked together or not.

Q. All right. Now, let me ask you this.

If the antenna system were improperly grounded would it make a difference? A. Improperly grounded at which point, sir?

Q. At any point or all points. A. If the antenna system were improperly grounded at all points, it would make a difference, yes, sir. However, this is quite unlikely -- very unlikely.

* * * * *

Q. Now, at how many places is this system grounded? A. I see three places that are grounded.

Q. Just tell us where those are. A. The first place that is grounded is the mast. The second place it is grounded is the chassis of the amplifier. The third place that it is grounded is the connection that the cable makes with the chassis of the amplifier. Consequently, it is at the same potential at the conduit, which is grounded.

233 Q. Now, if any one of these three grounds were missing, would there be a greater or lesser hazard if the telephone wires were separated entirely from the system. A. If any -- well, this depends on the particular ground that you are speaking of. For example, if the ground from the amplifier were missing, if the boxes, the conduit boxes, the receptacle boxes are also grounded, this would not make any difference.

Q. None at all? A. Well, no; largely because of the fact that the antenna cable leading from the amplifier is at the same potential at the conduit, which is at the same potential as the box. It would not make

much difference there. It would not make any difference, whether the ground -- from the chassis to the ground is missing. This offers -- the fact that there is a ground chassis as shown here, the fact that there is an extra ground at the chassis, offers an extra precaution.

Q. So then, there is a reason for having it there, I would presume?

A. Yes. In an sense of an extra precaution.

Q. In the sense of an extra precaution? A. Yes. Correct.

Q. Because we are dealing with something we cannot quite control, as safe as possible, is that right? A. Yes, sir.

234

REDIRECT EXAMINATION

BY MR. FRIEDMAN:

Q. Isn't it a fact too, Mr. Fratila, that the metal conduit from the antenna mast to the amplifier through which the lead-in antenna line is enclosed by itself, is it not a fact that metal conduit is also grounded?

A. Yes.

Q. So we have that additional precaution, if you want to call it that?

A. Correct. That additional precaution in the figure I initially quoted of power distribution split of 288 -- this is approximate; it is not exact -- that extra conduit offers in a sense more protection from the way of bleed-off for an antenna or for a lightening bolt, that might come down that particular line. In a sense, that offers a better ground.

Q. Now, with your education and background experience, if you were to be called upon to judge whether this system should be approved as safe as it is possible for the science to approve, would you approve it?

A. I would approve it, yes.

BY MR. HALLER:

235

Q. Mr. Fratila, you testified in your direct testimony that you wished that your home TV installation were as safe as this one. Is that correct? A. I did, sir.

Q. May I ask then, do you have a roof lightening rod type antenna on your house? A. No, sir. I don't have an antenna at present. What I had in mind there, was many of the do-it-yourself people, essentially, when they install an antenna like that on a roof top for their own use,

let's say, often times, these antennas are not grounded and they represent a terrific hazard because they are not grounded properly. I might add that I did this once myself. I did this out of ignorance. This was many, many years ago. Since then, I have learned my lesson.

Q. Well then, I would like to ask you, sir, do you have your lead-in wires to your TV set running in your telephone cables in your home?

A. No, I do not. The particular system that I am using is something that I bought in a Drug Fair; that plugs into a wall receptacle and utilizes all the transmission lines in the area.

Q. One final question, Mr. Fratila.

In your vast experience on antenna installation, have you ever seen the lead-in wires or whatever you call them, that go to the set, run in telephone conduits? A. I have never --

236 MR. FRIEDMAN: I would make this point clear. When we are talking about a lead-in wire, I think we should specify, Mr. Haller, because the testimony thus far, insofar as we are concerned, is that the "lead-in-wire" of the "lead-in-line" is that line which is connected from the antenna proper to the amplifier.

MR. HALLER: I said, the lead-in wire to the TV set.

MR. FRIEDMAN: There is no testimony in this case that that wire, that metal conduit, contains anything other than this, the lead-in wire of the antenna.

MR. HALLER: I am referring to the interior wires.

THE WITNESS. The distribution system?

MR. HALLER: Whatever you call it.

Have you ever seen distribution lines run in the same raceway as telephone lines?

THE WITNESS: To qualify my answer there, which is no, let me add that I have never inspected before this, before last Saturday, I have never inspected buildings containing television installations.

MR. HALLER: Thank you.

MR. GILL: We have been trying to differentiate -- at least, the

Appellant, and rightfully so -- between the lead-in that goes to the amplifier; then the rest of the system.

Now, with a pretty good charge of lightening, what protection have you from the effect of that charge, going in beyond the amplifier and into the system which is in the same channel, The grounding at that point, is that it?

THE WITNESS: Yes, that is correct.

Two points.

MR. GILL: At least. I think there are three points altogether.

THE WITNESS: Prior to the amplifier -- prior to the output of the amplifier, you have two grounds there -- three. One, from --

MR. ROBBINS: Let the witness testify, Mr. Friedman.

THE WITNESS: One from the mast, one from the chassis; and one on the other side of the chassis which is the RF connection. It is the distribution line, which the outer shield of the distribution line makes contact with the chassis. Now, this is also a ground potential.

MR. GILL: How do you make the ground connection to the water pipe?

THE WITNESS: As shown.

MR. GILL: By what mechanical means?

THE WITNESS: As shown here.

MR. GILL: I cannot see that. Is it a clamp?

* * * * *

THE WITNESS: Yes, it is a mechanical clamp.

MR. GILL: Which I think I have probably seen similar things in my house, with the ground wiring going through it. I have also seen the same things loose.

Do you mean that this is sufficient to prevent any of that getting into the channel where the two lines are -- the distribution system?

THE WITNESS: No, sir. This depends largely on the particular bolt of lightening encountered.

MR. GILL: That is what I thought. That is what I wanted to ask these questions for.

I would think, if you had a powerful blast, it might do some jumping if it ran into the slightest interference.

THE WITNESS: That is true of any antenna system.

MR. GILL: Yes.

THE WITNESS: It is not unique with this one.

MR. GILL: Yes. Okay. Thank you.

MR. FRIEDMAN: Go ahead.

THE WITNESS: I was going to say the fact that you can offer a power split, as offered by this system, does represent a good split.

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239

RECROSS EXAMINATION

BY MR. ROBBINS:

* * * * *

Q. Are you familiar with a Text on the Elements of Radio by Abraham Markus and William Markus? A. No, I am not.

Q. Those names mean nothing to you? A. Markus? Yes. Yes.

Q. This is a book. Are you at all familiar with the book? A. No, I am not.

Q. Let me ask you something. If I told you the definition of a lead-in was an insulated wire connecting the aerial to the receiving set, would you accept that as a definition of a lead-in? A. Under certain conditions, yes.

However, if I may expound, that condition does not necessarily apply for this antenna system here, in the sense that your amplifier is a receiving set and if you want to consider that particular definition as you have quoted there, what is described here in this testimony as the lead-in, also applies -- I mean, the definition as described here, also applied to the definition described herein, as the lead-in wire.

240 Q. Would they not both be lead-in wires, then, going into a reception set? A. Well, whether you want to --

Not necessarily so.

Q. Not necessarily so?

You seem to be having a little problem with the question.

A. Yes. There is a matter of definition here, where a definition is made in one case under certain circumstances. The question is this: Can we use that same definition for all circumstances, and I don't think we can.

Q. What is a lead-in? A. A lead-in, I would define as -- now, let's set up the conditions under which the lead-in is defined.

Q. Let me ask this question.

THE CHAIRMAN: For television.

[BY MR. ROBBINS:]

Q. Let me ask this question before you get into that. If you would sir, if you were requested right now, as I am asking you, what is a definition of a lead-in, can you give me one? A. A lead-in wire would be the wire leading in from an antenna system to its first receiver that it sees.

Now, this particular book - what is the date of that book?

241 Q. It is a standard text on radio which is 1943. A. All right. 1943.

Q. All right. A. The distribution systems in television have come about a long way since 1943.

Q. I agree. The first commercial television was probably about 1940, I believe. A. Yes. But let me say, master antenna systems have come about since then and the way, the proper way, to split off antenna signals through amplifiers and through transformers and through power networks, also has come a long way since that text book was printed.

Q. I agree. What do you call the wire? Is it possible -- let me ask this -- to categorize what you call the distribution wire, running from the amplifier to the set as a lead-in? A. Is it possible?

I would be more inclined to categorize that as an input wire or an input line, essentially, or an output line from the amplifier.

Q. You say you would be more inclined. I realize we are dealing, as one of the witnesses said yesterday, with what has at least a semblance of a semantic problem. A. Yes.

242 Q. From what you said, there is room for a difference there.

A. There is room for difference, yes.

BY MR. HALLER:

Q. Mr. Fratila, I would like to follow through on one of Mr. Gill's questions.

Could you tell the Board in your opinion as an expert, what a lightening bolt releases in the way of electrical energy as to the number of volts? A. The number of volts? That is hard to say.

Q. Has science ever been able to measure that to any degree? A. Voltage-wise, not to my knowledge. Current-wise, yes.

Q. What is that, sir? A. This is of the order of several hundred thousand amperes. Now, this again depends on the bolt itself. They vary from, say, 50,000 amperes to several hundred thousand amperes.

Q. How many volts would that be? A. Voltage-wise, this would -- it is meaningless to describe that in the sense there is no resistance offered to the lightening bolt. Consequently, it is largely an amperage that is measured here. A current flow, and this is of the order of magnitude I just spoke of.

243 Q. Yes, sir. Then I would like to ask you another question on another line.

If a new apartment house was being erected in Washington, we will say, and Appellant owed the company and came over there and installed a telephone system with all of their panels in the basement, and so forth, to each part, would you define that as a wiring system? A. Yes.

* * *
MR. GILL: One little one.

In the trade or in the profession, would these wires, after they leave the amplifier, in the trade, or as a general practice in the profession, be referred to as lead-in wires frequently or generally?

THE WITNESS: No. They would be more likely to be referred to as distribution lines or now, they -- let me refer to the junction box, following the amplifier.

* * *
THE WITNESS: This junction box is actually a power transformer which represents a power split.

MR. FRIEDMAN: Would you point it out?

MR. GILL: I know where it is. It is above the transformer -- the little fellow.

THE WITNESS: This junction box, here. (Indicating)

THE CHAIRMAN: That is the small one.

244 THE WITNESS: Yes, the common terminology varies. Since this --

* * * * *

THE WITNESS: This junction box represents in common terminology a separate network; often, what is done, is a complex network is broken up into many small ones and it is often referred to, the smaller ones in particular, so that any particular network analysis can be performed. Now, here, this particular junction box represents a power distribution. We can think of it as a power divider which is the terminology often used. Therefore, the line leading to the power divider and those leading from the power divider would be referred to as the input and output to the power divider, rather than lead-in wires.

MR. GILL: The occasion for my question was only this: As a layman, when I hook my set up to what comes there, I would consider that a lead-in wire to my set, and I wondered if, as a general practice the trade did not refer to that lead-in wire to the set?

THE WITNESS: There is an awful lot of room for discussion on that particular question.

* * * * *

245 THE CHAIRMAN: You heard the testimony of the experts yesterday. I will ask you the same question.

Have you made any study as to the cause of incidence to bring about the fires in television sets that result in the loss of many lives?

THE WITNESS: No, sir. I have not.

* * * * *

THE CHAIRMAN: You heard the opinion of the others testifying, that it was due to defective sets or poor repair work. From your knowledge as an expert in this realm of electricity, could you offer an opinion on that? Would that be correct or not?

THE WITNESS: Yes. I think this would be correct in the sense that the TV set that is not properly serviced is a potential fire hazard from the standpoint that the amount of power necessary to operate the TV set is of the order of 100 to 150 watts. That is an awful lot of power. If the set is not functioning properly, or if it is not designed properly, and it has been improperly repaired, such that it would not function properly, there is the possibility of introducing a short circuit in the set itself, which can create a spark of some sort.

This can also happen when the set is not properly fused.

Now, this spark gap can well ignite a wooden chassis or a wooden cabinet surrounding the television set.

MR. FRIEDMAN: Or make it a hot chassis.

THE WITNESS: Or make it a hot chassis, which makes it dangerous from the standpoint of receiving a shock.

THE CHAIRMAN: So that the danger lies in that realm, not due to the proximity of these wires that are in that conduit? A. I would say that is true.

247 MR. FRIEDMAN: The danger itself is partly in the set itself, the TV in the one instance, or the radio in the other, if there is a hot chassis. This is without regard to any television antenna lines which may come to it.

THE WITNESS: This is true, since your power to the receiver is 110 volts, I suppose -- microvolts received in the antenna system.

MR. ROBBINS: That is true of any electrical appliance isn't it?

THE WITNESS: Not necessarily. Say, for example, if you had a heating iron or a regular iron which developed a short circuit, if the person using that iron should be standing on a wet floor, for example, or wet concrete in the basement, and should touch the metallic part of that iron, there is a danger to that person. This would apply to most appliances.

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248

JOHN W. LEWIS

was recalled as a witness by the Board and was further examined and testified as follows:

**EXAMINATION BY THE CHAIRMAN OF THE BOARD
BY MR. PARKINSON:**

Q. In light of the testimony which you have heard, and confessedly, it is all expert, have you formed any opinion as to the applicacy of the regulation under which you operate? In other words, if you had to draw these all over again, would you broaden the determination or intent to preclude proximity of these wires in that conduit? A. No, sir.

* * * * *

MR. ROBBINS: Did you understand what he asked you? I want to ask that.

THE WITNESS: Yes. Well, he said, would I change the regulation. I said, no, sir.

THE CHAIRMAN: That was not quite my question.

249 THE WITNESS: I am sorry, sir.

THE CHAIRMAN: If you were starting now to draft the regulation --

THE WITNESS: Yes, sir.

THE CHAIRMAN: Would you draft one with the intention of precluding the proximity of telephone and television wires in the conduit such as is true in the instant case?

MR. ROBBINS: Might I ask if I could ask the witness --

THE CHAIRMAN: Let him answer this one, first.

THE WITNESS: Yes, I would say so.

THE CHAIRMAN: In the face of unanimous testimony, Mr. Lewis, that, as far as science goes, in its present state, there is no danger.

THE WITNESS: Well, sir, like I told you before, I specialized in power work. I have not specialized in this field.

THE CHAIRMAN: So you would be unable to answer that question?

THE WITNESS: Yes, I would say so. I specialize strictly in power.

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MR. HALLER: ***

250 Mr. Lewis, does the Electrical Engineers of the District Licensing Bureau classify telephone lines in an apartment house, we will say, as being a wiring system?

THE WITNESS: Yes, sir.

* * * * *

MR. PUNTCH: ***

Mr. Lewis, in your testimony previously, there was some reference to some of these grounds, to the effect that on your first visit, at least one or more of the grounds there, were not there that were there on your second inspection.

THE WITNESS: Yes, sir.

MR. PUNTCH: Now, how many of these three grounds identified over here, were there and connected at your first inspection?

THE WITNESS: Well, sir, when I went there the first time, I did not see any ground on the system. When we went there the second time, it was grounded like it is now.

* * * * *

252 MR. FRIEDMAN: Mr. Lewis, you had no hand in drafting or incorporating Section 8-123.2 Electrical Code, did you?

THE WITNESS: No, sir.

MR. FRIEDMAN: You don't know who did that?

THE WITNESS: No, sir.

253 MR. FRIEDMAN: You don't know whether the Electrical Department gave advice to the Commissioners on the advisability or feasibility of incorporating that section or not, do you?

THE WITNESS: No, sir.

MR. FRIEDMAN: You did not even know what the definition of those terms were meant to include at the time, did you?

THE WITNESS: Well, sir, no. I would say not exactly. See, I take the Code as I see it, you know.

MR. FRIEDMAN: Yes, sir. So your letter to Mr. Harris was based upon somebody calling attention to 8-123.2 and convincing you

that there apparently was some violation of that section. Right?

THE WITNESS: Yes, sir. We discussed it. I mean, you know, downstairs.

MR. FRIEDMAN: But in fact, you don't know whether this constitutes a safe, or hazardous, or dangerous condition at all, do you?

THE WITNESS: Well, Mr. Friedman, like I told you before, I am not an expert in this field.

MR. FRIEDMAN: I understand

THE WITNESS: Yes, sir.

MR. FRIEDMAN: You are unable to say?

254 THE WITNESS: I certainly am.

THE CHAIRMAN: What do you mean, you are unable?

THE WITNESS: Sir, I never tried to convey the fact that I am an expert in this field because I am not.

THE CHAIRMAN: That is as I understood you.

MR. FRIEDMAN: That is right.

THE WITNESS: I have worked with power all my life. I know everything about power.

* * * * *

MR. HALLER: Mr. Lewis, I think the Board would be interested in knowing what perpetrated your action in this case. I believe you mentioned that you went out there on a complaint. Would you tell us something about that?

THE WITNESS: Yes, sir. I was sitting downstairs in my office and the telephone rang and a man came -- I cannot even remember his name. He called me and said he worked for the telephone company and he received a shock.

255 MR. FRIEDMAN: I object to this testimony. I move that it be stricken. I think it is highly prejudicial to our case to even suggest -- for Mr. Haller to suggest that the witness reply to it.

MR. HALLER: He brought it up. He said he went there in answer to a complaint.

MR. FRIEDMAN: It is pursuant to a question you asked him.

THE CHAIRMAN: I think you will find the answer was, it was a false complaint.

MR. ROBBINS: I do not think that is a fact, Mr. Chairman.

THE CHAIRMAN: It has never been established.

MR. ROBBINS: There was established a man received a shock; it was never established as to what caused the shock.

MR. FRIEDMAN: The fact of the matter is that that man from the telephone company appeared at the previous hearing. He did not appear at this hearing. He testified, in answer to cross examination questions by me, he in no way meant to attribute the shock to the installation of this system. He said it was due to a dampness which he encountered, where he was standing, and so forth. He said he meant in no way to attribute this to the fact that this insulation or the metal conduits contained telephone and TV lines.

256 MR. ROBBINS: I take dispute with that. It was never established how he received the shock. It was only established that he received the shock for that reason, and that reason alone. I did not bring him because I have no way of establishing how that shock was caused.

I also submit to this Board that if Mr. Friedman had a way of establishing that the shock was caused by something other than it, he would have brought the witness as I would have brought the witness, had I been able to show that the television thing caused the shock.

THE CHAIRMAN: I think you can resolve it by saying it was not established that the shock was attributable to the television wire or its proximity to the telephone.

MR. ROBBINS: I am in complete agreement with that, sir.

THE CHAIRMAN: That settles that, doesn't it, Mr. Friedman?

MR. FRIEDMAN: Yes, sir.

* * * * *

257 MR. FRIEDMAN: I would like to ask Mr. Robbins one question, if I may, for the record.

THE CHAIRMAN: Yes, sir.

MR. FRIEDMAN: Whether Mr. Robbins has any witness who by his expertese and background and experience has examined this installation that is here under discussion?

MR. ROBBINS: I believe that counsel's question can be reserved for argument. Mr. Robbins has put on the case for the Department and has rested on that case.

THE CHAIRMAN: You have rested?

MR. ROBBINS: Yes, sir.

MR. FRIEDMAN: The amazing thing to me, I want to make it known for the record at this time, is that with all the experts, the physicists, scientists, electrical experts and technicians, throughout this metropolitan area in and out of Government, in an out of private industry, not one expert has been brought here by the District who has seen this installation; who can testify as to whether or not there is any danger or hazard whatsoever.

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EXHIBIT A-4

APPEAL OF ROBERT A. HARRIS,	:	
	:	
T/A ELECTRICAL ASSOCIATES	:	Docket No. M 1021

STIPULATION

It is hereby stipulated by and between counsel that if the witness, gPR
Mr. (Alvin E. Cushner,) an employee and official of the Jerrold Electronics Corporation of Philadelphia, Pennsylvania, were present, he would testify, as he did at a previous hearing, as follows:

That he is an employee and an official of the Jerrold Electronics Corporation of Philadelphia, with which firm he has been associated for a number of years; that he is a high school graduate, and that he attended a university majoring in engineering, and studied at such university for a period of more than three years when he was called into the Service;

and that he has all but completed the necessary engineering courses leading to a Bachelor of Engineering degree; that his duties with said firm primarily involve engineering services.

That his firm, Jerrold Electronics Corporation, is considered a leading firm in the United States which manufactures television equipment and installs television antenna systems, servicing entire towns, cities and villages in areas of the United States which do not have their own television broadcasting stations and which have poor television reception from neighboring communities having television broadcasting stations.

That he inspected the premises involved herein, 5601-5609 Second Street, S. E., and particularly inspected the master TV antenna system as it was installed by Robert A. Harris for the owner of this real estate; that in his opinion the TV antenna system in said premises was installed in a first-class, competent, workmanlike fashion, and that there was absolutely no danger or hazard involved in this system.

That it is his understanding that the D. C. Electrical Code does not require either television or TV antenna lines to be enclosed within a metal conduit; that the TV antenna lines and telephone lines installed in said premises are both enclosed within the same metal conduit; that this installation creates absolutely no hazard or danger whatsoever, and whether these lines are both enclosed in the same metal conduit, or not enclosed, would make absolutely no difference in the performance or function of the respective lines; nor is any danger or hazard of any kind created because these lines are enclosed within the same metal conduit; that each of these lines have a minute energy output which is measured in terms of microvolts; that the TV antenna system is properly bonded and grounded, and that if lightning struck the TV antenna on the roof, there would be no danger either to the television sets, or anyone coming in contact with either the television set or the telephone.

CORPORATION COUNSEL, D. C.

By /s/ Louis P. Robbins
Asst. Corporation Counsel D. C.
Maurice Friedman
Attorney for Robert A. Harris

Dated June 25, 1962

EXHIBIT A-5

APPEAL OF ROBERT A. HARRIS, : Docket No. M 1021
T/A ELECTRICAL ASSOCIATES :

STIPULATION

The following facts are stipulated and agreed to by and between the Corporation Counsel, D. C., and Maurice Friedman, attorney for Robert A. Harris:

1. Robert A. Harris is a resident of the District of Columbia. For many years he has been engaged in the electrical contracting business in the Washington metropolitan area under the trade name of Electrical Associates. He is now and, since the advent of the electrical licensing regulations, has always been regularly licensed and bonded as an electrical contractor in the District of Columbia.

2. The Riggs Investment Corporation is a Delaware corporation duly registered and doing business in the District of Columbia, and is the owner of the real estate located at 5601-5609 Second Street, N. E., in the District of Columbia.

3. During 1959, multiple family apartment buildings were erected for the Riggs Investment Corporation at premises which are now known as 5601-5609 Second Street, N. E. During the construction of these improvements, metal conduits were installed by Robert A. Harris for, on behalf of and paid for by the owner of said real estate.

4. The Chesapeake & Potomac Telephone Company was permitted by the owner of this property to utilize these metal conduits for running telephone lines therein for convenience of and use by the various tenants of said building.

5. When the construction of these improvements was completed and the premises occupied, and some time prior to September, 1960, the property owner, Riggs Investment Corporation, contracted with Robert A. Harris for the installation of a master television antenna system, utilizing the owner's metal conduits for lead-in antenna lines running to the various projects in the apartment for the benefit of the

tenants thereof. This system was completely installed by Robert A. Harris as contractor.

6. Prior to the installation of this master antenna system, no permits had been required for such work by the District of Columbia, or by its Department of Licenses and Inspections, and no permits had been issued for such work; and no inspection was ever made or required of such work.

7. Under the D. C. Electrical Code, neither television antenna lines nor telephone lines were or are required to be enclosed in metal conduits, ~~which are utilized for esthetic reasons only.~~ LPR-MF

8. On or about September 20, 1960, the said Robert A. Harris received a communication from the Chief of the Electrical Section of the D. C. Department of Licenses and Inspections, advising that an inspection of premises 5601-5609 Second Street, N. E. disclosed a violation of Article 810, Section 8123.2 of the D. C. Electrical Code, and ordered corrections to be made within 30 days from the receipt of said notice. The said Robert A. Harris replied to said notice, and requested an opportunity for a conference, which was not granted.

9. Promptly thereafter, the said Robert A. Harris filed his written notice of appeal to the Board of Appeals and Review. A hearing before said Board took place on October 20, 1960, at which evidence was offered in support of and in opposition to said appeal. Said hearing was concluded, memoranda were filed, and said Board took the matter under advisement. At a later date, and before a decision was reached, said Board re-scheduled the appeal for another hearing, and on February 23, 1961, further evidence was adduced.

10. On March 16, 1961, said Board notified the said Robert A. Harris in writing: "The Board finds that there is a clear violation of Article 810, Section 8123.2 of the 1957 Electrical Code. The action of the Department of Licenses and Inspections is therefore sustained."

11. On March 17, 1961, the said Robert A. Harris filed his motion or petition for reconsideration with said Board; and by notice

dated April 20, 1961, received by the said Robert A. Harris on May 9, 1961, said Board advised that the said motion for reconsideration was denied.

CORPORATION COUNSEL, D. C.

By: /s/ Louise P. Robbins
Asst. Corporation Counsel

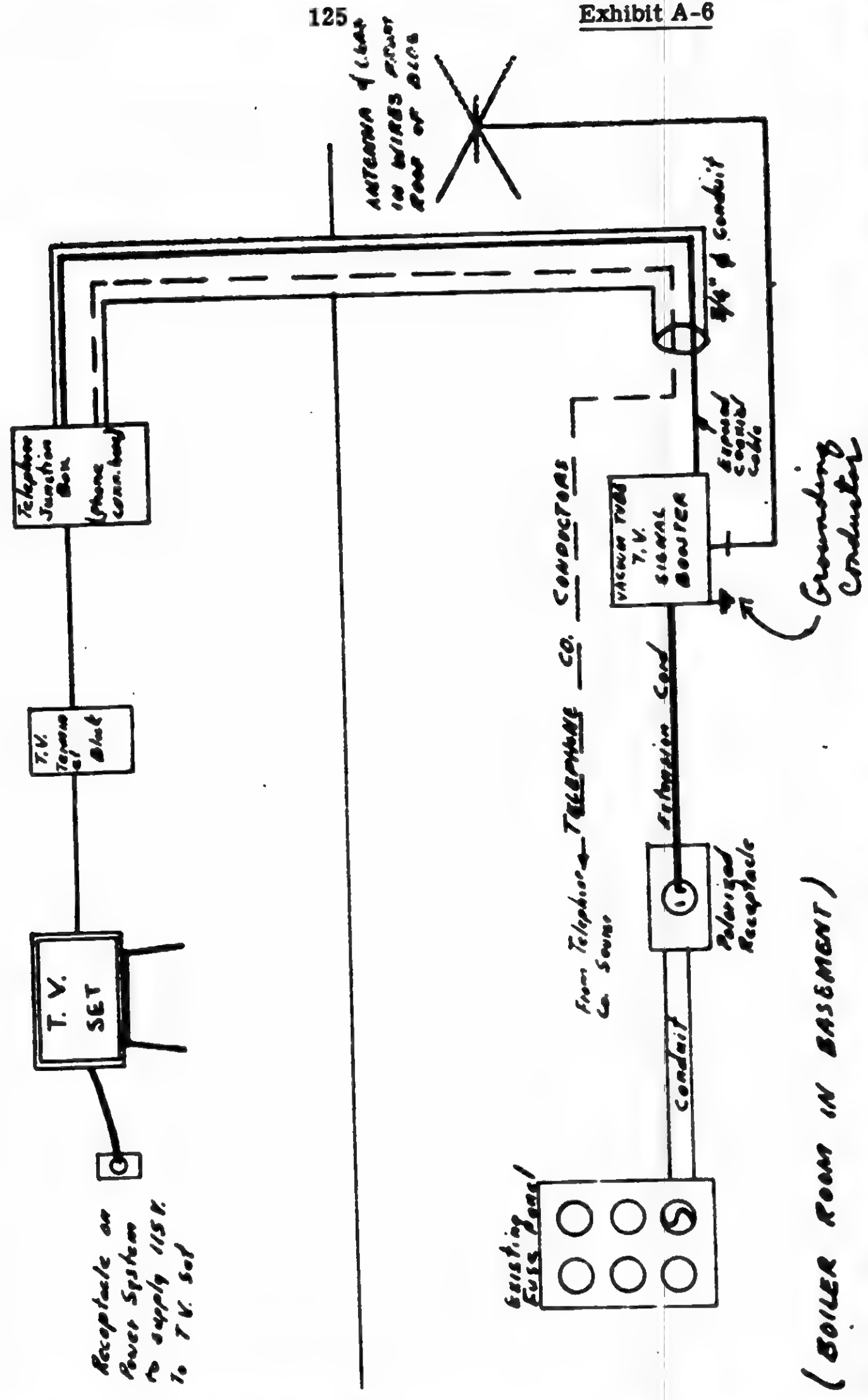
Maurice Friedman
Attorney for Robert A. Harris

Dated: June 25, 1962

INSTALLATION NO. 5601 - 09 2nd ST. N.E.

RE. INDOOR T.V. ANTENNA OR LEAD-IN WIRES IN SAME RACEWAY AS TELEPHONE CONDUCTORS

TYPICAL APARTMENT



[Written Notation:] Mr. Geiges called at 3:45 PM - 5/25/62 and confirmed that this is violation. Safety is involved since possibility of lightning striking TV antennae or short circuit in TV system could throw high voltage on telephone line. Will confirm with informal opinion by Air Mail letter on Monday. /s/ BM Vogel

May 22, 1962

Mr. K. S. Geiges, Chairman
Code Panel 15,
National Electrical Code Committee
Underwriters' Laboratories, Inc.
1655 Scott Lane
Santa Clara, California

Dear Sir:

Recently, this Department cited an electrical contractor for violating Section 8123.2 of the 1957 D. C. Electrical Code. This section is identical with Section 810-18(b) of the National Electrical Code. In making an installation of television antennae lead-ins, the contractor ran the lead-in in the same raceway as the telephone conductors. A schematic diagram of the existing installation is attached hereto.

A decision in favor of the District of Columbia was handed down by a lower court. The contractor immediately appealed this decision to the Court of Appeals. In the review of the case, this Court has raised the question of whether the installation actually made is in violation of the intent of Section 8123.2 of the D. C. Electrical Code (810-18(b) of the National Electrical Code). The Appeals Court also questioned the relation to public safety of the Section. It is our opinion that this installation is in violation of both Section 8123.2 of the D. C. Electrical Code and Section 810-18(b) of the National Electrical Code.

It would be greatly appreciated if you as chairman of the Panel which wrote Section 810-18(b) of the National Electrical Code review the schematic attached and render an opinion as to whether it is in violation or not.

I want to thank you for your cooperation.

Very truly yours,

BERTRAM M. VOGEL
Research and Standards Engineer

EXHIBIT A-8

Copy to
Mr. Stetka

National Fire Protection Association
International
NATIONAL ELECTRICAL CODE COMMITTEE
PANEL NO. 15

Santa Clara, California
May 28, 1962

Department of Licenses and Inspections
Office of the Director
Government of the District of Columbia
Washington, D. C.

Attention: Mr. Bertram M. Vogel
Research and Standards Engineer

Subject: Section 810-18(b) National Electrical Code

Gentlemen:

In answer to your inquiry of May 22nd, the interpretation procedure of the National Electrical Code Committee is outlined in the appendix to the Code and involves a formal action by an interpretation Committee. Each of these committees is established separately for the question involved, and as you can appreciate, there is a considerable amount of preparation that can be eliminated if an informal comment is adequate for the purpose. After careful consideration of the details outlined in your letter which are to the effect that the television antenna lead in wires were run in the same raceway as the telephone conductors, it seems clear that such an installation would not comply with the literal wording or with the intent of the aforementioned paragraph.

The basis for this opinion as to intent is the fact that television antennas being located above the roof line of the building are natural targets for lightning discharge. In the event of such discharge, it is desirable to keep the antenna lead in wires separate from conductors of other systems, and particularly the conductors of a telephone system because of its connection to hand held instruments.

It is hoped that the foregoing will eliminate the need for the more formal interpretation in providing the desired information.

Very truly yours,

K. S. GEIGES

cc: H. B. Whitaker, G. H. Tryon III, Frank Stetka

**GOVERNMENT OF THE DISTRICT OF COLUMBIA
BOARD OF APPEALS AND REVIEW**

Re: Docket No. M 1021

**Appeal of Robert A. Harris
t/a Electrical Associates
5601-5609 - 2nd Street, N. E.
(apartment house)**

Appeal from order issued by Department of Licenses and Inspections for correction of Electrical Code violations.

This case was recently heard before this Board and the action of the Department of Licenses and Inspections was upheld. Thereafter, an appeal was taken to the United States District Court for the District of Columbia and the decision of the Board of Appeals and Review was sustained. Thereupon, the decision was carried forward to the United States Court of Appeals for the District of Columbia Circuit whose decision, dated May 3, 1962, remanded the case back to the United States District Court for further proceedings in accordance with its opinion. Thereupon, the United States District Court, on an order signed June 7, 1962, remanded the above entitled matter to the Board of Appeals and Review for a de novo hearing, ordering "That the above-mentioned de novo hearing shall be held and a record of such hearing shall be prepared and filed in this Court not later than 30 days from the date of the signing of this Order."

It will be noted that the Court, in ordering a de novo hearing, did not indicate whether or not the Board of Appeals and Review should render a decision on the testimony adduced at the de novo hearing. We assume that the Court intended this Board to render a decision but without certainty this Board decided to render a decision in any event, believing that it could do no harm and might do some good.

The de novo hearing was held on June 25 and 26, 1962 before W. Herbert Gill, Member, Guy W. Puntch, Member, and Kenneth N. Parkinson, Esq., Chairman, Hearing Committee, and consisted primarily in presentation of expert testimony by both sides. Maurice Friedman, Esq.,

a member of the Bar of the United States District Court for the District of Columbia, represented the appellant; Assistant Corporation Counsel Louis P. Robbins represented the District of Columbia.

The first element for our consideration is whether or not Section 8123.2 of the District of Columbia Electrical Code is a valid provision. This Board feels that it does not lie within its power to declare this provision invalid.

The second factor for our determination is whether or not certain wires for use in a television system and wires for use in a telephone system, when placed in close proximity as they were in this case, constitute a hazard or danger as contended by the District of Columbia. From the testimony it would appear, to our satisfaction at least, that the danger is so remote as to be almost infinitesimal and that the system in use in the instant case is a good system and is in keeping with present day knowledge in the field of this science. Even though remote and infinitesimal, nevertheless a potential danger is not ruled out and the purpose of this regulation was, insofar as possible, to rule out even a potential. For that reason, if for none other, we unanimously sustain the action of the Department of Licenses and Inspections, and deny the appeal.

Although reaching this decision as indicated, there is one element involved which needs some clarification, and that is as to what is meant by the term "lead-in wires." This Board finds itself in a state of some uncertainty as to the true meaning of this expression. It would appear from the originators of the Code provision above cited what we might term "in-take" wires were in fact "lead-in" wires, whereas there was considerable testimony offered by experts to the effect that that was not true and the lead-in wire as contemplated in the industry means that wire which leads from the antenna to the amplifier and is in no instance in proximity to telephone wires and, furthermore, is thoroughly grounded. We did not decide which viewpoint is correct, as we feel it unnecessary in reaching this decision. Our concern is whether or not the wires, for

the in-take or otherwise, which are in close proximity do present the possibility of potential danger which this provision of the Code was designed to eliminate.

/s/ Kenneth N. Parkinson, Esq.
Chairman, Hearing Committee

July 3, 1962

[Filed July 7, 1962]

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

ROBERT A. HARRIS, et al,

Plaintiffs,

v.

WALTER N. TOBRINER, et al,

Defendants.

Civil Action No. 1510-61

ORDER

Upon consideration of the motion of defendant Board of Commissioners, D. C., to remand the above-entitled matter to the Board of Appeals and Review for the District of Columbia for a de novo hearing, together with the memorandum of points and authorities in support thereof, the opposition thereto, and of oral argument by counsel for all parties in open court, it is, by the Court, this 7th day of June, 1962,

ORDERED: That the motion of defendant Board of Commissioners, D. C., to remand the above-entitled matter to the Board of Appeals and Review for the District of Columbia for a de novo hearing be, and the same hereby is, granted; and it is

FURTHER ORDERED: That the above-mentioned de novo hearing shall be held and a record of such hearing shall be prepared and filed in this Court not later than 30 days from the date of the signing of this Order.

/s/ George L. Heart
Judge

[Certificate of Service]

[Filed July 9, 1962]

MEMORANDUM

On June 7, 1962, this Court entered an order in the instant case that the above-entitled matter be remanded to the Board of Appeals and Review of the District of Columbia for a de novo hearing and that the hearing and that the record of such hearing be prepared and filed in this Court. In conformance with that order counsel for the defendants submit the affidavit of Jane F. Gatling, Secretary, Board of Appeals and Review of the District of Columbia, and the attached documents and transcript, which constitute the record of proceedings before this Board on June 25 and 26, 1962.

One item of evidence, to-wit: a plywood board model of TV antenna and lead-in wires, which purported to be a scale model of the installation in question and which was proffered by the plaintiff, Harris, is in the possession and custody of plaintiffs' counsel, Maurice Friedman, Esq. It is understood that Mr. Friedman will make this evidence available to the Court when it is required.

/s/ Chester H. Gray
Corporation Counsel, D. C.

/s/ John A. Earnest
Assistant Corporation Counsel, D. C.

/s/ Robert R. Redmon
Assistant Corporation Counsel, D. C.
Attorneys for the Defendants

[Certificate of Service]

[Filed January 8, 1963]

MOTION FOR JUDGMENT IN FAVOR OF PLAINTIFFS

The plaintiffs respectfully move the Court for a judgment, or a summary judgment, in their favor for the following reasons:

(a) That the record, including the transcript of proceedings before the Board of Appeals and Review clearly demonstrates that plaintiffs are entitled to the relief sought herein;

(b) that there is no genuine issue as to any material facts;

(c) That Section 8123.2 of the D. C. Electrical Code is either inapplicable or, if applicable, said section should be held invalid as applied to the circumstances in this case; and

(d) And for such other and further reasons as are stated in the memorandum attached hereto and made a part hereof and as may be advanced at the hearing on this motion.

Respectfully submitted,

Maurice Friedman

Attorney for Plaintiffs

[Certificate of Service]

[Filed January 8, 1963]

PLAINTIFFS' STATEMENT OF MATERIAL FACTS
AS TO WHICH THERE IS NO GENUINE ISSUE

Plaintiffs state that there is no genuine issue as to the following material facts:

(1) That no permits or inspections are required either for the installation of TV antenna systems or telephone lines.

(2) That the D. C. Electrical Code does not require either TV antenna lines or telephone lines to be enclosed in a metal conduit; and that either and both said lines may be run in any manner desired by the owner of the property involved without being enclosed in a metal conduit and within less than two inches of each other.

(3) That if this TV antenna system were wholly enclosed within its own metal conduit, and not in the same conduit with telephone lines, such installation would not be considered to be better than the existing installation; but enclosing the TV antenna system in a metal conduit which contains telephone lines, if anything, adds to the safety of the system.

(4) That the existing TV antenna system was installed in a safe, expert, workmanlike manner, using the highest quality materials available.

(5) That the existing TV antenna system is the best system known to present-day science.

(6) That there is no danger or hazard involved in this installation.

(7) That there is no reasonable connection between the prohibited installation and the health, safety and welfare of the public.

(8) The "lead-in" line referred to in Section 8123.2 of the Electrical Code pertains to the line leading from the aerial on the roof to the amplifier in the basement, which is contained in a metal conduit by itself and without other lines.

Maurice Friedman

Attorney for Plaintiffs

[Certificate of Service]

[Filed February 19, 1963]

CROSS-MOTION OF DEFENDANTS FOR SUMMARY JUDGMENT

The defendants move the Court for summary judgment on their behalf on the grounds that the pleadings, the record of the Board of Appeals and Review filed herein as Exhibits A-1 through A-10, which, by reference, are incorporated herein and made a part hereof, demonstrate that there are no genuine issues of fact and that the defendants are entitled to judgment as a matter of law.

/s/ Chester H. Gray
Corporation Counsel, D. C.

/s/ John A. Earnest
Assistant Corporation Counsel, D. C.

/s/ Robert R. Redmon
Assistant Corporation Counsel, D. C.
Attorneys for Defendants

[Certificate of Service]

[Filed February 19, 1963]

**DEFENDANTS' STATEMENT OF MATERIAL FACTS
AS TO WHICH THERE IS NO GENUINE ISSUE**

The defendants state that inasmuch as this case is a review of an administrative hearing that the record before the Board of Appeals and Review, which forms a part of this Court's file as Exhibits A-1 through A-10, constitute the material facts as to which there is no genuine issue.

/s/ Chester H. Gray
Corporation Counsel, D. C.
/s/ John A. Earnest
Assistant Corporation Counsel, D. C.
/s/ Robert R. Redmon
Assistant Corporation Counsel, D. C.
Attorneys for Defendants

[Filed March 8, 1963]

[MOTIONS ARGUED]

[Filed June 6, 1963]

ORDER

Upon consideration of plaintiffs' motion for summary judgment, of the defendants' cross-motion for summary judgment, of the memoranda of points and authorities in support thereof and in opposition thereto, of the record of the District of Columbia Board of Appeals and Review filed herein as Exhibits A-1 through A-10 attached to defendants' motion for summary judgment, of the plywood board model of TV antenna and lead-in wires which formed a part of the evidence at the Board hearing and which was presented to this Court at the oral hearing on March 8, 1963, and of oral argument by counsel in open court, it is, by the Court, this 6th day of June, 1963,

ORDERED: That the plaintiffs' motion for summary judgment be, and it is, hereby denied, and it is

FURTHER ORDERED: That the defendants' cross-motion for summary judgment be, and it is, hereby granted and the complaint be, and it is, hereby dismissed.

/s/ Burnita Shelton Matthews
Judge

[Certificate of Service]

[Filed June 24, 1963]

United States District Court for the District of Columbia

ROBERT A. HARRIS, et al,

Plaintiffs

vs.

WALTER N. TOBRINER, et al,

Defendants

)
)
)
) Civil No. 1510-61
)
)
)

NOTICE OF APPEAL

Notice is hereby given this 24th day of June, 1963, that the Plaintiffs, Robert A. Harris and Riggs Investment Corp. hereby appeals to the United States Court of Appeals for the District of Columbia from the judgment of this Court entered on the 6th day of June, 1963 in favor of the Defendants, Walter N. Tobriner, et al, against said Plaintiffs, Robert A. Harris and Riggs Investment Corp.

/s/ Maurice Friedman
Attorney for Plaintiffs

[Certificate of Service]

BRIEF FOR APPELLEES

UNITED STATES COURT OF APPEALS
For The District Of Columbia Circuit

No. 18,014

United States Court of Appeals
for the District of Columbia Circuit

FILED DEC 4 1963

ROBERT A. HARRIS
and
RIGGS INVESTMENT CORPORATION,

Nathan J. Paulson
CLERK

Appellants,

v.

WALTER N. TOBRINER,
President,
JOHN B. DUNCAN,
and
BRIGADIER GENERAL CHARLES M. DUKE,
Members of the Board of Commissioners, D. C.,

Appellees.

Appeal From The United States District Court
For The District Of Columbia

CHESTER H. GRAY,
Corporation Counsel, D. C.
MILTON D. KORMAN,
Principal Assistant Corporation
Counsel, D. C.
HUBERT B. PAIR,
Assistant Corporation
Counsel, D. C.
RICHARD W. BARTON,
Assistant Corporation
Counsel, D. C.
Attorneys for Appellees,
District Building,
Washington 4, D. C.

COUNTER-STATEMENT OF QUESTIONS PRESENTED

In the opinion of appellees, the questions presented are:

1. Does not Section 8123.2 of the Electrical Code of the District of Columbia, which provides, with exceptions not here applicable, that " * * * [i]ndoor antennas and indoor lead-ins shall not be run nearer than two inches to conductors of other wiring systems * * *" in any premises, prohibit the installation of television antenna indoor lead-in wires in the same one-half inch metal conduits with telephone wires?

2. Does not such section of the Electrical Code bear a reasonable relationship to the protection of the public health, safety, and general welfare?

I N D E X

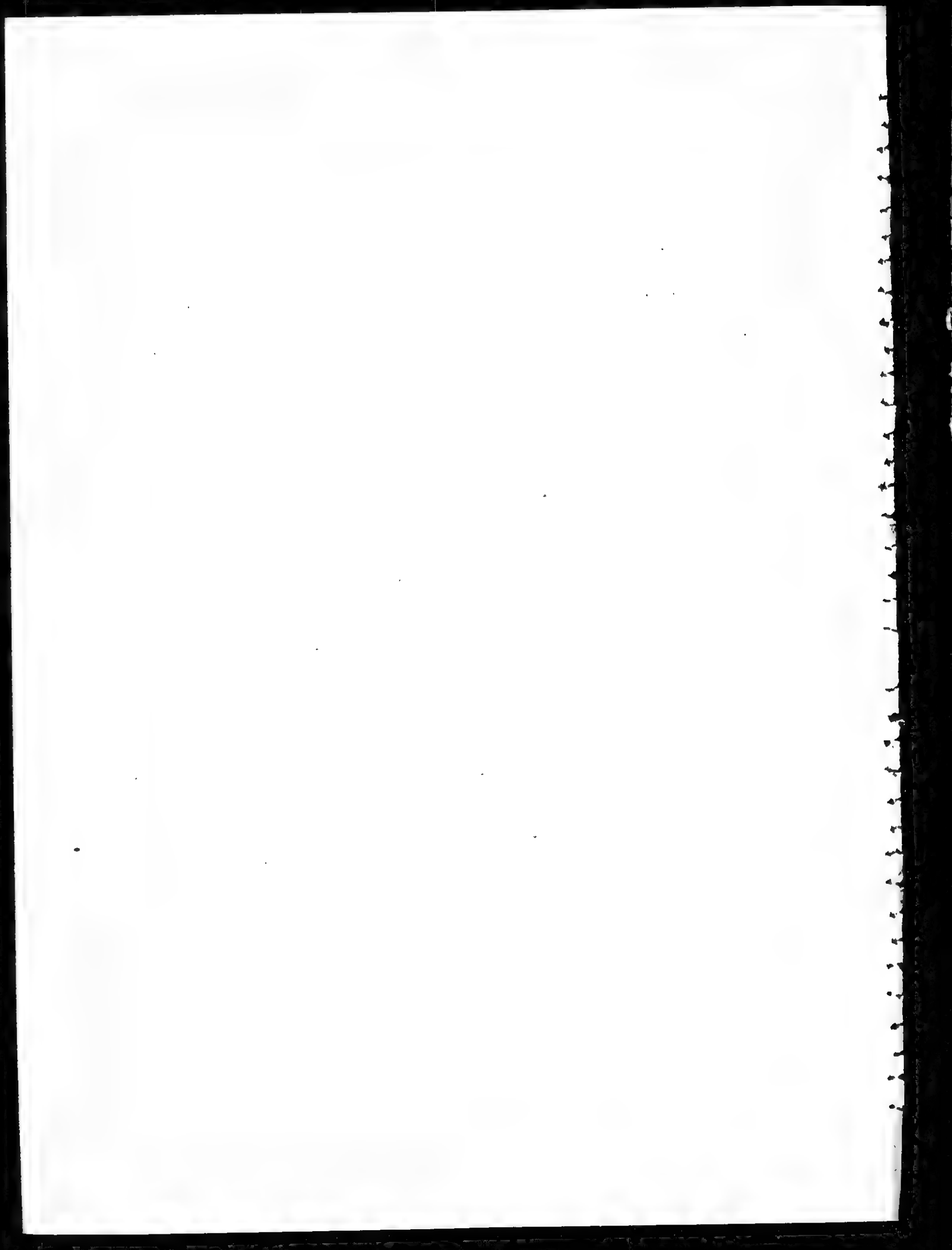
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AUTHORITIES CITED

District of Columbia Code, 1961, Title 1, Administration, Appendix, Organization Order No. 122, page 140	2-3
Electrical Code of the District of Columbia, Article 810, § 8123.1	12
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McQuillan, <u>Municipal Corporations (3d Ed.)</u> , Vol. 5, §§ 19.05, 19.06.	15



**UNITED STATES COURT OF APPEALS
For The District Of Columbia Circuit**

No. 18,014

**ROBERT A. HARRIS
and
RIGGS INVESTMENT CORPORATION,**

Appellants,

v.

**WALTER N. TOBRINER,
President,
JOHN B. DUNCAN,
and
BRIGADIER GENERAL CHARLES M. DUKE,
Members of the Board of Commissioners, D. C.,**

Appellees.

**Appeal From The United States District Court
For The District Of Columbia**

BRIEF FOR APPELLEES

COUNTER-STATEMENT OF THE CASE

Appellant Riggs Investment Corporation owns a large apartment building in the District of Columbia. During its construction,

one-half inch metal conduits leading into each apartment therein were installed. Upon completion of the building, the Chesapeake and Potomac Telephone Company was permitted by the owner to utilize these conduits for running telephone wires into the various apartments (J. A. 4-5, 122).

Some nine months to a year later, following complaints by tenants respecting the quality of television reception within the building, appellant Harris, a licensed electrical contractor, was employed by the owner to install in the building a master television antenna system. In connection with such installation, television antenna indoor lead-in wires were installed by appellant Harris in the same conduits which carried the telephone wires into the various apartments (J. A. 4-5, 21-25, 122).

Following a complaint by the telephone company and an inspection of the conduits, the District of Columbia Department of Licenses and Inspections notified appellant Harris that the running of the television antenna indoor lead-in wires in the same conduits with telephone wires is a violation of Article 810, Section 8123.2, of the D. C. Electrical Code and ordered him to correct the unlawful condition (J. A. 118-119, 123). He refused, and, pursuant to D. C. Code, 1961, Title 1, Administration, Appendix,

Organization Order No. 122, page 140, appealed to the Board of Appeals and Review. After hearings, the Board of Appeals and Review found that the running of television antenna indoor lead-in wires in the same conduits with telephone wires " * * * is a clear violation of Article 810, Section 8123.2, of the 1957 Electrical Code * * *" and affirmed the order of the Department of Licenses and Inspections (J. A. 123).

Appellants then filed in the District Court a complaint against the Commissioners of the District of Columbia seeking a declaratory judgment that Article 810, Section 8123.2, of the D. C. Electrical Code does not prohibit the running of television antenna indoor lead-in wires in the same one-half inch metal conduits with telephone wires and that, if it does, the Commissioners are without authority to promulgate the regulation because, allegedly, it bears no reasonable relationship to the public health, safety, or general welfare. Appellants sought also mandatory injunctive relief (J. A. 4-10).

Thereafter, appellees, without filing any part of the record of proceedings before the Board of Appeals and Review, filed a motion for summary judgment which the District Court granted. Urging that judicial review of the challenged action of the Board of

Appeals and Review should have been based upon the record of its proceedings, appellants then moved for reconsideration, which was denied.

Upon appeal, this Court held that:

" * * * Appellants are entitled to a review of the record made before the Board of Appeals and Review.

" * * * [Since] the Board functions as a quasi-judicial body * * * judicial review of its decisions should be based upon the record of its proceedings. * * *" [Footnote omitted.]

The judgment below was, accordingly, reversed and the case remanded for further proceedings (113 U. S. App. D. C. 10, 304 F. 2d 377).

Following return of the case to the District Court, appellees filed a motion to remand the matter to the Board of Appeals and Review for a de novo hearing. In their motion and supporting affidavit, appellees represented that " * * * due to the malfunction of the machine [used to record the prior hearing before the Board] and due to noise created from sandblasting taking place outside of the building where the hearing was being conducted, * * * it is impossible to produce a stenographic transcript of the hearing * * *" (J. A. 11-12). Over appellants' objection, the motion was granted

and the matter remanded to the Board with directions to promptly hold a de novo hearing and to prepare and file with the court a record thereof (J. A. 130).

The Board of Appeals and Review thereupon held a de novo hearing, again affirmed the order of the Department of Licenses and Inspections, and filed with the District Court a complete record of the proceedings before it (J. A. 128-131).

In cross-motions for summary judgment, thereafter filed, appellants and appellees agreed that there now existed no genuine issue as to any material fact and that the sole question presented was whether, upon the record of proceedings before the Board of Appeals and Review, appellants or appellees were entitled to judgment as a matter of law (J. A. 131-133).

Upon consideration of the pleadings and the record of proceedings before the Board of Appeals and Review, the District Court denied appellants' motion for summary judgment, granted appellees' motion for summary judgment, and dismissed appellants' complaint (J. A. 134-135). This appeal followed (J. A. 135).

The Evidence

At the de novo hearing before the Board of Appeals and Review extensive evidence was adduced. Ten witnesses testified in person and one by stipulation. Several exhibits were also received in evidence. In a number of areas the record reflects no conflict. For example, there is complete agreement as to the exact manner in which the master television antenna system was installed. This was established by stipulation, by the testimony of witnesses, by a schematic drawing, and by a model of the system erected on a large plywood panel. It is undisputed that only the highest quality components and equipment were used in the system.

Briefly, the system consists of a master television antenna erected on the roof of the building from which an outdoor lead-in wire (in a conduit by itself) runs down the outside of the building and into the basement where it connects with an amplifier-transformer from which indoor lead-in wires (characterized by some witnesses as a "distribution system") run into each apartment through the conduits already occupied by the telephone wires (J. A. 75-76, 125).

The interior diameter of the conduits is half an inch in some places and three-quarters of an inch in other places (J. A. 43).

The telephone wires have a diameter of three-sixteenths of an inch; the indoor lead-in wires a diameter of a quarter of an inch (J. A. 43). It was necessary to fish or pull the indoor lead-in wires into the conduits containing the telephone wires (J. A. 15-16). In so doing, the insulation surrounding either or both sets of wires could have been damaged and the bare wires exposed (J. A. 15-17, 34-37).

For some time after the system was installed and placed in operation, it was not grounded in any manner (J. A. 74, 117). Later the system was "properly" grounded in three places by means of wires connected by a mechanical clamp to a cold water pipe in the basement (J. A. 74, 76-77, 110, 117).

The great mass of the evidence adduced before the Board consisted of the testimony of "experts" in the fields of electrical and television engineering respecting the degree of potential hazard or danger to persons or property inherent in the installation. The witnesses were in general agreement that some potential hazard or danger was involved. They differed, however, in their opinions as to the degree of such danger or hazard. In the opinion of some witnesses the potential hazard or danger was substantial, especially in the not unlikely event lightning should strike the

rooftop antenna (J. A. 33-73, 127). Other witnesses were of the opinion that the danger or hazard involved was "extremely remote" (J. A. 104), "infinitesimal" (J. A. 105), or, insofar as the "present state of the art" permits, non-existent (J. A. 96). The opinions of the latter witnesses were, however, predicated on (1) the assumption that the system will at all times remain "properly" grounded and (2) the assumption that when the indoor lead-in wires were pulled into the conduits neither they nor the telephone wires were damaged, something ascertainable only by removing and examining both sets of wires, which, admittedly, had not been done (J. A. 19-20, 74-98, 103-114, 120-121).

REGULATION INVOLVED

Article 810, Section 8123.2, of the Electrical Code of the District of Columbia:

"Antennas and Lead-Ins -- Indoors.

"Indoor antennas and indoor lead-ins shall not be run nearer than two inches to conductors of other wiring systems in the premises unless (1) such other conductors are in metal raceways or cable armor, or (2) unless permanently separated from such other conductors by a continuous and firmly fixed non-conductor such as porcelain tubes or flexible tubing."

SUMMARY OF THE ARGUMENT

From the language of Section 8123.2 of the D. C. Electrical Code, its long-continued administrative construction, and the other evidence of record, it is clear that the television antenna wires, installed by appellant Harris in the conduits already occupied by telephone wires, are television antenna "indoor lead-ins" within the meaning of such section. It being undisputed that the two sets of wires are "nearer than two inches" of each other, that the telephone wires are a "wiring system," and that neither proviso to the regulation is here applicable, it follows that the installation involved constitutes a clear violation of the regulation.

Upon the entire record before the Board of Appeals and Review, it is manifest that appellants have failed to overcome the presumption of validity of Section 8123.2 of the D. C. Electrical Code by establishing, by the requisite degree of proof, that such regulation bears no reasonable relationship to the public health, safety, or general welfare.

The opinions of appellants' witnesses that the television antenna system installed by appellant Harris presents no appreciable hazard or danger to life or property, are conditioned on (1) the assumption that the system will remain at all times properly grounded

and (2) the assumption that neither the television antenna indoor lead-in wires nor the telephone wires were damaged when drawn into the conduits. Such evidence, therefore, fails to establish the absence of a substantial potential hazard in the system.

ARGUMENT

I

The installation of television antenna lead-ins in the same conduits with telephone wires violates the D. C. Electrical Code.

On the question whether the installation by appellant Harris of television antenna indoor lead-ins in the same one-half inch conduits with telephone wires constitutes a violation of Section 8123.2 of the D. C. Electrical Code, the record reflects little conflict in the evidence.

Obviously, such indoor lead-ins are "run nearer than two inches" to the telephone wires and it is undisputed in the record that such telephone wires constitute a "wiring system" within the meaning of the regulation (J. A. 19, 51, 81-82) and that neither of the two provisos to the regulation are here applicable (J. A. 14-15, 59). It would thus appear that the installation is a clear violation of the regulation.

Appellants, however, in a futile attempt to avoid the impact of the regulation, argue that the television antenna wires which were installed in the same conduits with the telephone wires are not television antenna "indoor lead-ins" within the meaning of the regulation but rather a "distribution system." Aside from the fact that appellants, in their complaint, in their brief on the earlier appeal in this case, and generally throughout the record have, themselves, regularly characterized such wires as "antenna lead-in wires" (J. A. 5; Nos. 16,617, 16,710; brief, p. 5), "lead-in antenna lines" (Nos. 16,617, 16,710; brief, p. 2), "television lead-in antenna lines" (Nos. 16,617, 16,710; J. A. 16), "TV antenna lead-in line" (Nos. 16,617, 16,710; J. A. 18, affidavit of appellant Harris), etc., it is manifest that appellants' argument in this respect is no more than an ineffectual exercise in semantics.

Although some of appellants' witnesses before the Board stated that the television antenna wires leading from the basement into the various apartments were, in their opinions, properly characterized as a "distribution system" and not as "lead-ins" and that the only "lead-in" in the system was the wire, in a conduit by itself, running down the outside of the building and into the basement (J. A. 86-87, 101, 111-112), they admitted that

"there is room for difference" of opinion on the point, that "it is possible" to characterize such indoor wires as "lead-ins" and that any assertion as to which is the better designation is "* * * a good way to start a semantic argument" (J. A. 87, 111-112).

The testimony of other witnesses, including those charged with the administrative interpretation of both the section of the D. C. Electrical Code here involved and the identically-worded section of the National Electrical Code, was to the effect that the television antenna wires enclosed in the same conduits with the telephone wires are television antenna "indoor lead-ins" within the meaning of the respective regulations (J. A. 32, 48-49, 55, 127).

Moreover, Article 810 of the D. C. Electrical Code clearly distinguishes and has separate regulations governing television antenna "outdoor lead-ins" and television antenna "indoor lead-ins." Obviously, then, the term "indoor lead-ins," as used in the regulation here involved, cannot be interpreted as applying only to the wire running from the rooftop antenna down the outside of the building and into the basement. Such wire is plainly not an "indoor lead-in" but rather an "outdoor lead-in" and, as such, its installation is governed by the immediately preceding section of the Electrical Code, i. e., Section 8123.1.

Appellants complain also that both the Board of Appeals and Review and the court below failed to give adequate weight to prior administrative construction of the regulation. In this connection, appellants assert that " * * the District had never before construed this Section 8123.2 of the Electrical Code to prohibit running television antenna lines and telephone lines in the same conduit * * * " (brief, p. 16). This statement, while perhaps literally correct, is misleading in the context used, for, insofar as the record here shows, this is the first and only time such an installation has been made or attempted in the District of Columbia. Appellant Harris himself testified unequivocally that, in all his experience as an electrical contractor, he had never before or since made or attempted a similar installation (J. A. 101-102). Nor had any of the many other witnesses who testified on the subject ever made, attempted, seen, or heard of any similar installation in the District of Columbia (J. A. 67, 71, 84, 92, 109).

Certainly, upon this record, it must be clear beyond question that there has been no prior administrative construction, either directly or by implication, that an installation such as that here involved is or may be permitted by the regulation. On the contrary, the complete absence of any similar installation in the District of

Columbia, would indicate that the regulation has, by necessary implication, been consistently administratively construed so as to prohibit such an installation. Appellants' argument, accordingly, falls with the faulty premise upon which it is bottomed.

II

Section 8123.2, D. C. Electrical Code, bears a reasonable relationship to the public health, safety and general welfare.

Appellants urge that the record of proceedings before the Board of Appeals and Review shows that the installation of television antenna indoor lead-in wires in the same conduits with telephone wires presents no appreciable hazard or danger to life or property and that any regulation prohibiting such an installation, accordingly, bears no reasonable relationship to the public health, safety, or general welfare and is, therefore, invalid.

In arguing this point, appellants have culled from the record those parts of the evidence which tend to support their position and then drawn from such evidence those inferences most favorable to them. The court below, however, was obviously required to, undoubtedly did, take just the opposite view of the evidence.

A municipal regulation, such as that here involved, enacted in the

exercise of the police power is presumably valid and every reasonable intendment must be made to sustain it. And one who challenges the validity of such a regulation has the burden of clearly establishing its invalidity beyond a reasonable doubt. 5 McQuillan, Municipal Corporations (3d Ed.), §§ 19.05, 19.06.

Application of the foregoing well-established and unchallenged rules of law to the entire record makes the conclusion inescapable that the court below was manifestly compelled to hold that appellants had unquestionably failed to establish by the requisite degree of proof the invalidity of the regulation.

Moreover, even giving full weight and credence to the evidence most favorable to appellants, it is apparent that the installation in question involves a substantial and very real potential hazard and danger, especially in the not unlikely event that lightening should strike the rooftop antenna.

The opinions of appellants' witnesses that the system presents no appreciable danger or hazard to life or property was predicated on the assumption that the system will at all times remain "properly" grounded (as it was when they inspected it), and on the further assumption that when the television antenna indoor lead-in wires were fished or pulled into the conduits containing the telephone

wires no damage to either set of wires occurred. Indeed, all witnesses who expressed an opinion as to the safety of the system conceded, either directly or by clear implication, that, if the system was not properly grounded and lightening struck the rooftop antenna, a substantial hazard and danger to life and property would unquestionably be created by the installation of the two sets of wires in the same conduit and that such hazard and danger would be increased if, as may have occurred, the wires had been damaged when fished or pulled into the conduits.

In this connection, it is well to recall that when the system was installed and put into operation and for some time thereafter it was not grounded in any manner (J. A. 17, 117). Later, the system was "properly" grounded at three points by wires attached to a cold water pipe by means of mechanical clamps. Obviously, however, such clamps could and might easily be removed by accident, inadvertance, or other unintentional means. Or they might just as easily be removed intentionally by some person unaware of their purpose and significance. Indeed, one of the members of the Board of Appeals and Review stated, with reference to the type of mechanical clamps here used: "I have also seen the same things loose" (J. A. 110). Should any of the foregoing events occur, the

system would be again ungrounded and, admittedly, a hazard and danger to life and property.

CONCLUSION

Upon the foregoing, it is respectfully submitted that the judgment of the District Court is in all respects correct and in accordance with law and should, accordingly, be affirmed.

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